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CHALLENGING CURRICULUM MATERIALS

Where to Find Them
How to Use Them

GOVERNMENT DOCUMENTS COLLECTION
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University of Massachusetts
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OFFICE FOR GIFTED AND TALENTED

Massachusetts Department of Education
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Publication #14,995
Approved by Daniel D. Carter, State Purchasing Agent

C H A L L E N G I N G C U R R I C U L U M M A T E R I A L S

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INTRODUCTION

Wonderful! At last your school system has a gifted program! And they've given you a budget for curriculum materials, too. Now, what are you going to do with it?

This booklet is designed to give you some guidance in deciding what materials to purchase, and in planning what to do with the materials after you have them.

Included are annotated listings of materials of use both to teachers and parents of the gifted primary, elementary, and middle school child. Full ordering information is given (valid as of June 1987); every effort has been made to insure that this information is accurate. A separate listing of publishers' addresses is included, and it's suggested that you send off a postcard to each of these requesting a current catalog. Fine new materials are constantly coming on the market, and this fact, plus your individual interests not met in this listing, makes having the complete catalogs most useful.

Also included in this booklet are some ideas about using materials. If you're like most teachers, you have probably on occasion ordered materials that looked interesting, and then when they arrived been too busy to sit down and figure out a good way of using them. Offered here are some "generic" suggestions for using various kinds of materials, as well as some ideas for using materials in particular curriculum areas.

Included as well are some brief sketches of units for Grs. 1-6 which make use of specific materials in this list, in language, math, science, and social studies.

All items in this listing have been used and recommended by practitioners in the field (with the exception of the films and videos, which have not been previewed). The main criterion for inclusion has been excellence; there are many materials available, and some are better than others. It should be understood, however, that by publishing this listing, the Massachusetts Office for Gifted and Talented is <u>not</u> suggesting that materials not included in this listing are not worthwhile. Rather, the Office is simply sharing the recommendations of people within the field. There are surely many other items available which could have been included. You doubtless have your own favorites which are not listed here.

Fortunately, in the work of compiling this listing I have received some fine suggestions from a number of practitioners in the field of gifted education. Their names appear below.

Annmarie Adreani, Needham Public Schools
Marilyn Blumsack, Medford Public Schools
Betty Calise, Somerset Public Schools
Gail Casson, Bridgewater Public Schools
Karen Conklin, Northampton Public Schools
Ronald Costa, West Walpole
Mrs. Coyne, Brockton Public Schools
Nancy Crasco, Arlington Public Schools
Maryellen Cunnion, consultant
Carolyn Davis, Southborough Public Schools
Clista Dow, Sharon Public Schools
Betty Gilson, Brockton Public Schools
Joan Lagoulis, Palmer, Alaska Public Schools
Barbara Libby, consultant
Mrs. Mallory, Brockton Public Schools
Therese McKillop, Braintree Public Schools
Barbara Meyer, Brookline Public Schools
Mary Mindess, Lesley College
William Radomski, Newton Public Schools
Diana Reeves, consultant
Doris Shallcross, University of Massachusetts
Mrs. Tennihan, Brockton Public Schools

I am most grateful to each of these people for his or her thoughtful contribution to this publication.

USERS' GUIDE TO USING THE LISTING

Materials are listed by general subject matter, although of course there is often overlap between curriculum areas.

Complete ordering information--name of publisher, ordering number, and price--is given at the end of each listing. Publishers' addresses will be found in a separate section following the periodicals section.

Grade Level Code

*	Contains material suitable for, but not limited to, Grs. K-2
no marking	Contains material suitable for, but not limited to, Grs. 3-6
+	Contains material suitable for, but not limited to, Grs. 7-8

LISTING OF PRINTED MATERIALS

Materials are listed in nine categories: general references concerning education of gifted; guidance and parenting of gifted; critical/creative thinking; areas of language arts, social studies, science, and mathematics; visual studies; and varied collections.

Approximately two-thirds of the materials are generally suitable for use with the middle elementary grades, in which most programs for gifted are found. The remaining third of the materials are about equally distributed below and above these grades. Of course it should be understood that these designations are only approximate.

If a particular material was recommended by a contributing practitioner, his or her name is given at the end of the listing.

General References Helpful In Working With Gifted

* Educating The Preschool/Primary Gifted And Talented. Twelve articles which deal with identification, program and curriculum, and parents; also contains descriptions of 6 exemplary programs. N/SLTIG/T, #22, $17.50. (Recommended by Diana Reeves, consultant.)

* A Resource Guide To Preschool And Primary Programs For The Gifted And Talented. Jenkins-Friedman. Descriptions of 60 early childhood programs, including identification and programming techniques and a listing of tests appropriate for young gifted children. Creative Learning Press, #665, $11.95.

* Gifted Young Children. A literature review of research on the physical, social, emotional, and cognitive characteristics of preschool and primary children. A. W. Peller, #1277TC, $7.95.

Question Quest. Discovering ways to ask worthwhile questions, designed for student use but actually excellent for teachers. Very simple, very practical. A. W. Peller, #1090 KO, $2.95.

Frames of Mind: The Theory Of Multiple Intelligences. Gardner. Extensive reporting on the many intelligences of human beings: visual, musical, interpersonal, physical, as well as logical, verbal, etc. A landmark book. Zephyr, #BB01, $11.95.

It's About Time: Inservice Strategies For Curriculum Compacting. A "how-to" guide describing compacting procedures and giving guidelines for inservice presentations on this important subject, including activities for inservice courses and techniques for evaluating levels of mastery. Creative Learning Press, #695, $19.95.

4Mat In Action. McCarthy and Leflar. Creative lesson plans for teaching to learning types with right/left mode techniques, including units in math, social studies, and language arts at a variety of grade levels. Zephyr, #EX02, $19.95. (Recommended by Betty Calise, teacher of gifted, Somerset Public Schools.)

What To Do For The Gifted Few. Wooster. A very brief, very fine handbook of strategies for differentiating instruction for the gifted student. Excellent resource for classroom teachers. A. W. Peller, #1031KO, $2.95.

Toward Excellence In Gifted Education. Feldhusen et al. Six noted authors on philosophy, curriculum, administrative concepts, evaluation for gifted. Zephyr, #LO01, $12.95. (Recommended by Diana Reeves, consultant.)

Developing A Written Plan For The Education Of Gifted And Talented Students. Sato et al. A framework for writing IEP's for the gifted. N/SLTIG/T, #1, $5.75. (Recommended by Diana Reeves, consultant.)

Teaching As A Subversive Activity. Postman et al. This is warmly urged upon you as a hard-hitting and sobering look at what you really are doing, being a teacher. Dell, no number, $4.95.

Self-Directed Study Guide On The Education Of The Gifted And Talented. Treffinger and Curl. Give yourself a "Master's Degree" in gifted and talented, including pre- and post-testing, projects, and bibliographies. N/SLTIG/T, #12, $17.50. (Recommended by Diana Reeves, consultant.)

Curriculum Development For The Gifted. Maker. Sections on content, process, product, and environmental modifications. A very complete resource. Zephyr, #AS01, $32.00.

Self-Starter Kit For Independent Study. Doherty and Evans. Games, lesson plans, techniques for teaching note taking and interviewing--everything you need to teach students about conducting investigations on their own. Synergetics, no number, $18.00. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School; and by Diana Reeves, consultant.)

Teaching The Gifted Child. Third Edition. Gallagher. An excellent all-around discussion of the challenges of education of the gifted and talented. Zephyr, #AB03, $29.95. (Recommended by Barbara Meyer, gifted program coordinator, Brookline Public Schools.)

Mentor Relationships. Torrance. Subtitled "How they aid creative achievement, endure, change, and die." An important and stimulating book. D. O. K., #ABL8505, $8.50. (Recommended by Joan Lagoulis, gifted program coordinator, Alaska.)

Evaluating Gifted Programs: Formative Evaluation. Nasca. A step-by-step guide, for those with limited experience, to evaluating gifted programs. D.O.K., #A8221, $5.95.

The Schoolwide Enrichment Model: A Comprehensive Plan For Educational Excellence. Renzulli and Reis. A 500-page book, rather poorly edited but stuffed with excellent information, including planning strategies, sample letters, interest assessing instruments, lists of materials, and complete elaboration of the Triad Model, as well as lots of other topics. A useful resource. Creative Learning Press, #691, $39.95

The Almost Whole Earth Catalog Of Process Oriented Enrichment Materials. Stewart and Dean. An indispensible catalog listing how-to books in every area by topic. Good for independent study. GCT, #P043, $15.95. (Recommended by Diana Reeves, consultant.)

Systems And Models For Developing Programs For The Gifted And Talented. Ed. by J. Renzulli. Full descriptions of 19 major models of gifted education, including identification procedures and programming activities. A useful resource especially for those planning new programs. Creative Learning Press, #696, $34.95.

Encouraging Creative Learning For The Gifted And Talented. Treffinger. A presentation of methods, techniques, and lists of resources for teachers and parents. N/SLTIG/T, #21, $9.95. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

Scales For Rating The Behavioral Characteristics Of Superior Students. Renzulli et al. Rating scales for Learning, Motivation, Creativity, Leadership, Art, Music, Drama, Planning, and Communications. Used in countless programs. Don't reinvent the wheel! Creative Learning Press, #662, $8.95.

Gifted Children: Their Psychology And Education. Tannenbaum. A thorough, scholarly, readable, and closely argued treatment, with original ideas. Macmillan, further data not available. (Recommended by Gail Casson, teacher of gifted, Bridgewater Public Schools.)

Teaching Models In Education Of The Gifted. Maker. Definitive descriptions of the most widely used models. An excellent resource. Zephyr, #AS02, $32.00.

Classroom Questions: What Kinds? Sanders. An analysis of questions, with exercises to help develop better and more varied questioning techniques. Harper and Row, no number, $11.95. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

+ The Secondary Triad Model: A Practical Plan For Implementing Gifted Programs At The Junior And Senior High School Levels. Reis and Renzulli. Addresses secondary school bugaboos. The Enrichment Team concept is useful even if Triad isn't for you. Creative Learning Press, #692, $14.95. (Recommended by Diana Reeves, consultant.)

Guidance And Parenting Of Gifted

* The Gifted Kids Survival Guide: Ages 10 And Under.
\+ The Gifted Kids Survival Guide: Grades 7-12. Galbraith. Written for kids themselves. Intensely practical, friendly, tactful, and useful. Discusses REAL problems and REAL approaches to solving them. Highly recommended; straight talk for all. Creative Learning Systems, #9257S, $7.99 (Ages 10 And Under); #1577S, #8.99 (Grades 7-12). (Recommended by Joan Lagoulis, gifted program coordinator, Alaska.)

* Bringing Out The Best: A Resource Guide For Parents Of Young Gifted Children. Saunders and Espeland. Focusing on how to allow your young gifted child to be a child. About early schooling and reading, toys, perfectionism and self-esteem, dealing with school systems, and other important issues. Free Spirit Publishing, no number, $12.95.

* Games Children Should Play. One hundred lesson plans, task cards, and worksheets about communicating and listening. Suitable for all elementary grades. A fine, caring book. Zephyr, #SF04, $12.95.

Gifted Children Speak Out. Delisle. Candid comments by hundreds of elementary school children on the high points and hurdles of growing up gifted, including an extensive and excellent discussion/activity guide. Creative Learning Systems, #3607S, $15.99.

Smart Girls, Gifted Women. Kerr. Focus on obstacles to the success of the young woman, and thoughtful suggestions for overcoming these difficulties, For parents and teachers of gifted girls of all ages. GCT, #P091, $13.95. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

On Being Gifted. This book, written by gifted students themselves, should be read by all in the field. American Association for Gifted Children, no number, $7.95. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

The Underachievement Syndrome. Rimm. Ideas for every member of the underachiever's family and for teachers. NAGC, no number, $13.00. (Recommended by Mrs. Coyne and Miss Mallory, teachers of academically gifted, Brockton Public Schools.)

Growing Up Gifted. Second Edition. Clark. Sections on understanding gifted infants and older children, and special-needs gifted, the school, and creativity. Readable, well-organized, an excellent introduction for parents and teachers. Zephyr, #CM01, $29.95. (Recommended by Gail Casson, gifted resource teacher, Bridgewater Public Schools.)

The Growing Person: Healthy Emotional Development In Children. Shallcross and Sisk. Dozens of specific activities help teachers and parents to help children grow. Bearly Limited, no number, $9.50

Guiding The Gifted Child. Webb, Mechstroth, Tolan. For parents and teachers. Many very practical suggestions for dealing with a variety of problems and needs. D.O.K., #AOPP-2, $12.95. (Recommended by Barbara Libby, program consultant; by Clista Dow, teacher of gifted, Sharon Junior High School; and by Barbara Meyer, gifted program coordinator, Brookline Public Schools.)

The Hurried Child. Elkind. This should be required reading for every adult who deals with a gifted child. The subtitle is "Growing up too fast too soon." Zephyr, #AW05, $8.95.

Giftedness, Conflict, And Underachievement. Whitmore. An important book about this difficult problem. The nature of the problem and some ideas for a program to address it are provided. D.O.K., #AAB-22, $35.00

Managing The Social And Emotional Needs Of The Gifted: A Teacher's Survival Guide. Galbraith. A very valuable, practical discussion of meaningful strategies for creating a supportive environment for these special-needs students. Highly recommended. Creative Learning Systems, #4557S, $13.99.

What Makes You So Special? Heller. An excellent book written for kids which offers them practical advice on how to deal with school problems which may result from their giftedness. Thinking CAPS, #801, $7.50.

Effective Communication--A Handbook Of Discussion Skills. This small book contains a number of extremely effective activities designed to foster communicating and listening. A. W. Peller, #1061KO, $3.95.

+ Perfectionism: What's Bad About Being Too Good. Adderholdt-Elliott. About this pervasive problem of the gifted, the whys and what to do's, for ages 11-18 and their parents and teachers. Free Spirit Publishing, no number, $8.95.

+ The Ungame. Competition-free game which deals with individual values. GCT, #V011, $14.95. (Recommended by Diana Reeves, consultant.)

+ Fighting Invisible Tigers. Hipp. Written for teenagers, but very important reading for parents too. The subtitle is "A student guide to life in the jungle." About dealing with stress, coping skills, perfectionism, risk-taking. Full of exceedingly practical suggestions. Free Spirit Publishing, no number, $16.95.

+ Get Off My Brain: A Survival Guide For Lazy Students. McCutcheon. This is an absolute must for giving to the underachieving bright student in junior high or high school. "Shows you how to take charge of the time you spend in school and survive in classes that have no class." A rare book. Free Spirit Publishing, no number, $8.95.

+ The Gifted Kids Survival Guide II (Ages 11-18) Galbraith and Delisle. A sequel to the original very successful book. Includes straight talk about intelligence, taking charge, friendships, depression and suicide, and self-acceptance. Free Spirit Publishing, no number, $9.95.

Critical And Creative Thinking

* Tri-Parts. A set of 90 cards naming common objects is the take-off point for 30 fascinating challenges. The idea is to draw three of the objects at random and use them to solve one of the challenges. A. W. Peller, #3116KO, $3.95.

* Philosophy For Children Series: Pixie and Kio And Gus. This widely-used series presents philosophical issues through novels written especially for the program. Teachers' manuals contain detailed development of the concepts through discussion and writing activities. Zephyr, #FM01, $8.00 (Pixie), #FM02, $37.50 (Looking For Meaning, manual for Pixie); #FM11, $8.00 (Kio And Gus), #FM12, $37.50 (Wondering At The World, manual for Kio And Gus). (Recommended by Karen Conklin, director of curriculum and instruction, Northampton Public Schools.)

* Junkyard Treasures. Pictures of objects which can be manipulated to design unusual contraptions after you have analyzed the function your invention needs to fill, and the attributes of the objects pictured. Actually a course in invention, and a rigorous one too. Many uses for these materials. Creative Learning Systems, #11507S, $12.99.

* Thinkathon. I. II. III. Each volume of this series is in the form of contests which can be entered by individuals, groups, classes, or even schools. Topics include analogies, language skills, categorizing, brainstorming, trivia, math and logic, and interpreting. A. W. Peller, #3159AP, $8.95 (I); #3160AP, $8.95 (II); #5010AP, $8.95 (III). (Recommended by Mrs. Coyne and Miss Mallory, teachers of academically gifted, Brockton Public Schools.)

* Open Ended Problems. A set of 33 everyday, interesting problems to which there are not right answers. Good for discussion and perhaps writing assignments, for primary and older students. Midwest, #MP 15.13, $5.50.

* Something Search. Find something that's a good gift for an octopus, something that gets smaller without being touched--300 searches that are answers to interesting riddle-type questions. A variety of uses for this. KolbeConcepts, #C093X, $16.00.

* The Other Side Of The Elephant. Allen. "Theatre activities for classroom learning." Some wonderful theatre and movement games which draw on many skills in all areas of learning. D. O. K., #A7719, $5.95. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

* Primary Thinking Skills. Bks. A1 and A2 (PreK-K). Bks. B1 and B2 (Grs. 1-3). Karnes. The basics of analytical and critical thinking for the youngest children are presented in the form of activities and class discussion. All lessons are presented in plan form, with cognitive, creative, and affective objectives, skill areas, materials needed, and suggested procedures. Midwest Publications, #MP-60.01, $9.95 (Bk. A1); #MP 60.03, $9.95 (Bk. A2); #MP 60.02, $9.95 (Bk. B1); #MP 60.04, $9.95 (Bk. B2).

* Warm-Up Mind Benders. Harnadek. Deductive thinking skills problems are presented for discussion and argument. This book is excellent for beginners, both students and teachers. Midwest Publications, #MP 13.26, $5.95 (Instructions and Detailed Solutions); #MP 13.02, $5.50 (student book).

* Primarily Problem Solving. Draze. Creative problem solving for young children, including situations from fairy tales as well as real life. Worksheets for each step of problem-solving. Dandy Lion Publications, #GD-14, $8.00.

* Thinking Games 1 (for Grs. K-4)
Thinking Games 2 (for Grs. 4-9) Original games for small or large groups, designed to give practice in planning, drawing inferences, and formulating questions and possibilities. Unusual, fun, and valuable. A. W. Peller, #1371LP, $6.50 (Games 1); #1372LP, $6.50 (Games 2).

The Search For Satori And Creativity. Torrance. Written by one of the most respected names associated with the development of creativity, this book devotes a chapter to each of the creative thinking skills. D.O.K., #AF102, $9.50. (Recommended by Barbara Libby, program consultant; and by Joan Lagoulis, gifted program coordinator, Alaska.)

Brain Scratchers. What sets this book of puzzles apart from others is its invitation to students to create their own, based on the various types presented in the book. KolbeConcepts, #C059, $9.50.

CPS For Kids: A Resource Book For Teaching Creative Problem-Solving To Children. Eberle and Stanish. A step-by-step procedure for teaching this useful skill to children. Includes worksheets and exercises. D. O. K., #A8006, $9.95. (Recommended by Barbara Libby, program consultant; and by Diana Reeves, consultant.)

Wollygoggles. In spite of the cutesy title, an excellent book. Pages and pages of "Guess my rule" problems in math, figures, and words. And best of all, opportunities for students to make up their own problems of this type. Creative Publications, #10432, $6.50.

Think Tank. Draze. A simulation game using creative problem-solving to choose the best solutions to various problems. Dandy Lion Publications, #GD-4, $7.50. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

Inventors' Workshop. Twenty-five challenging projects and activities to make and mess with. How about a steadiness tester, a toothpaste dispenser, a bubble-making machine. Absorbing tasks for all kinds of kids. Creative Learning Systems, #3557S, $8.99.

Mind Benders. Bks. A-1, A-2, A-3, A-4 (easy); Bks. B-1, B-2, B-3, B-4 (medium to more difficult). Harnadek. These absorbing books of deductive reasoning puzzles make use of charts to solve the problems. It is recommended that you begin with the A-level problems. Midwest Publications, #MP 13.04, $5.50 (Bk. A-1); #MP 13.06, $5.50 (Bk. A-2); #MP 13.16, $5.50 (Bk. A-3); #MP 13.18, $5.50 (Bk. A-4); #MP 13.08, $5.50 (Bk. B-1); #MP 13.10, $5.50 (Bk. B-2); #MP 13.20, $5.50 (Bk. B-3); #MP 13.22, $5.50 (Bk. B-4). (Recommended by Diana Reeves, consultant; and by Joan Lagoulis, gifted program coordinator, Alaska.)

Visual Logic Series. Negation. Conjunction. Disjunction. Three Connectives. Implication 1 and 2. Good way to introduce both logical thinking and the language of logic to elementary students. Midwest Publications, #MP 41.01, $5.95 (Negation); #MP 41.02, $5.95 (Conjunction); #MP 41.03, $5.95 (Disjunction); #MP 41.04, $5.95 (Three Connectives); #MP 41.05, $5.95 (Implication 1); #MP 41.06, $5.95 (Implication 2). (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

Thinking And Learning. Wassermann. Highly recommended. Sets of beautifully illustrated and graphically elegant work cards, first teaching 8 basic thinking skills (including imagining as well as observing, classifying, identifying assumptions, making decisions, etc.), then moving on to the use of each of these skills in 8 curriculum areas (including test-taking, computers, and recreation, as well as the standard content areas and the arts). Impressive in all respects, and well worth the money. A very fine item to purchase for use in the regular classroom. Coronado Publishers, #11000, $221.40 (Level 3); #11001, $221.40 (Level 4); #11002, $221.40 (Level 5); #11003, $221.40 (Level 6).

Decide And Design. Invention with many spinoffs, written or activity based, Rube Goldberg included. Resources for the Gifted, #C0050, $9.95. (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

Brain Stretchers. Bk. 1. Bk. 2. Interesting challenges in pattern-seeing, logic , and puzzle-solving. Midwest Publications, #MP 7.01, $6.95 (Bk. 1); #MP 7.02, $6.95. (Recommended by Joan Lagoulis, gifted program coordinator, Alaska.)

Who Owns The Unicorn?
Hometown, U. S. A.
Who Lives In The Igloo?
Who's In Charge Here? Sets of logic puzzles in board game form. Each set contains games of progressive difficulty. Kids (and adults) love them. A. W. Peller, #1032KO, $5.95 (Unicorn); #1033KO, $5.95 (Hometown); #6106KO, $5.95 (Igloo); #8221KO, $5.95 (Charge).

CoRT Thinking Program. deBono. A very complete 6-part design for teaching specific tools of thinking. Each of the 6 sets of lessons (on Breadth-1, Organization-2, Interaction-3, Creativity-4, Information and Feeling-5, and Action-6) teaches the use of 10 different tools or techniques of thinking. All are interesting and useful; you might want to try just the first set (Breadth) to get a feel for this unique material; an inspection pack for this set is available. Pergamon Press, no numbers, CoRT 1-6, each set $12.50 (teacher's notes), $19.00 (student workcards); CoRT Inspection Pack (one set of CoRT 1 teacher's notes and student workcards), $15.00.

Creative And Mental Growth. Lowenfeld. Designed to show the relationships between cognitive development and creative/artistic expression. Macmillan, no number, $21.95. (Recommended by Nancy Crasco, gifted program coordinator, Arlington Junior High Schools.)

The Teacher's Book Of Lists. Madsen and Gould. Worksheets and activities drawing on lists, which can be used as topics for independent study, vocabulary development, creative writing, or...? Sundance, #BC01355, $12.95. (Recommended by Barbara Libby, program consultant.)

Creative Encounters With Creative People. Following biographical sketches of more than 20 creative men and women are activities which encourage students to identify with the creative person. Creative Learning Systems, #7787S, $9.99. (Recommended by Barbara Libby, program consultant.)

Six Thinking Hats. deBono. A very simple yet effective system of learning to think both critically and creatively in decision-making situations. Kids catch on immediately and use these techniques. Zephyr, #LB21, $16.95.

Logic, Anyone? Activity sheets using matrix logic, Venn diagrams, and syllogisms. Some are easy, some are difficult. Good material explaining each type of activity. Creative Learning Systems, #1957S, $11.99. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School; and by Therese McKillop, teacher of gifted, Braintree Public Schools.)

The Memory Book. Lucas and Lorayne. An excellent resource for teachers to use to help students organize, analyze, and use a variety of learning and memory systems. Ballantine, no number, $3.95. (Recommended by Barbara Libby, program consultant.)

Man's Search For Meaning. Viktor Frankl. A classic book on creative thinking. Simon and Schuster (Touchstone), no number, $5.95. (Recommended by Joan Lagoulis, gifted program coordinator, Alaska.)

Superthink. Davis. A superb workbook to be used by both teacher and student, which teaches, through activities, how to frame more productive questions. For example, rather than asking, "Who discovered America?" ask, "Why is Columbus credited with discovering America?" A most important resource. Dandy Lion Publications, #GD-48, $8.50.

Building Thinking Skills. Bk. 1 (Grs. 2-4), Bk. 2 (Grs. 4-7). Black and Black. Lesson plans and complete student material for developing ability to recognize similarities and differences, recognize and complete sequences, classify, and draw analogies. Each skill is presented in both verbal and visual modes. Midwest Publications, #MP 52.09, $15.95 (Bk. 1); #MP 52.10, $15.95 (Bk. 2).

Imagination Express. Davis. You can't buy a ticket on this subway! Students have to sing, write a song, and use their creative thinking and language skills in order to continue their journey on the Imagination Express. D. O. K., #A6400, $5.95. (Recommended by Barbara Libby, program consultant.)

A New Way To Use Your Bean. Freeman. Fantastic collection of rigorous critical/creative thinking activities which center on FOOD. An absolutely amazing resource. For creative, fun-loving teachers only. Trillium, #0190, $10.00.

The Book Of Think. Burns. Brown Paper School Series. Written for kids, on "What to do when you feel perplexed, or stumped, and can't get there from here." A give-it-to-the-kid-and-stand-back book. Creative Publications, #20579, $8.25.

deBono's Thinking Course. Many lessons taken from the CoRT Thinking Program, with sections on perception, pattern-seeing, analysis, creativity, and decision-making, using deBono's very practical tools for critical and creative thinking. Creative Learning Systems, #3847S, $17.99.

Asking Questions, Finding Answers. Draze. Activities and worksheets (good ones) designed to help students become question-askers rather than always answer-givers. Enough of varied level to take a whole year to explore if you like. Good material for teachers, too. Dandy Lion Publications, #GD-5, $7.50. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School; and by Diana Reeves, consultant.)

The Strange And Familiar Series. Book III Grs. 1-4. Bk. VI Grs. 5-8. W. J. J. Gordon. Wonderful workbooks with provocative exercises in creative thinking. Making the strange familiar and the familiar strange via synectics analogy-making. Creative Learning Systems, #2607S, $9.99 (Bk. III); #2617S, $9.99 (Bk. VI).

Connections. Very age-appropriate logic problems to solve, using the grid technique. Four levels: introductory, beginning, intermediate (focus on seasonal and holiday themes), and advanced, for experts. Dandy Lion, #GD-19, $5.00 (introductory); #GD-20, $5.00 (beginning); #GD-18, $5.00 (intermediate); GD-90, $5.00 (advanced). (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

ThinkerPosters. A set of 8 large posters, plus manual with lessons, which zero in on skills of critical thinking in a pithy, practical fashion. They are somewhat expensive, but exceptionally useful. Sundance, #BC07550, $29.95.

Teaching Creative Behavior. Practical help in a classroom handbook about encouraging creative behavior in both students and teachers. Bearly Limited, no number, $9.50.

Philosophy For Children Series: Harry Stottlemeir's Discovery. This novel introduces formal logic and reasoning skills as applied in daily life. Zephyr, #FM03, $8.00 (Harry), #FM04, $37.50 (Philosophical Meaning, manual for Harry). (Recommended by Karen Conklin, director of curriculum and instruction, Northampton Public Schools.)

Hippogriff Feathers. Stanish. Excellent how-to guidelines for teachers to help develop creative potential and problem-solving skills. Good Apple, #GA237, $8.95. (Recommended by Diana Reeves, consultant.)

Patchwork. Draze. An outstanding collection of open-ended exercises of all kinds, including games and task cards. This is very definitely a cut above the average and an excellent value. Dandy Lion Publications, #GD-3, $7.00.

+ Building Thinking Skills. Bk. 3 Figural and Bk. 3 Verbal (Grs. 6-10). Black and Black. These materials continue the development of skills in the areas of thinking described above. The Figural book features complex visual-spatial exercises; the Verbal book uses vocabulary at a Gr. 7-8 level. Midwest Publications, #MP 52.11, $15.95 (Bk. 3 Figural); #MP 52.12, $15.95 (Bk. 3 Verbal).

+ Critical Thinking. Bk. 1 (Grs. 7-12). Bk. 2 (Grs. 10-12). Harnadek. Hard, but very rewarding material for upper intermediate grades. Topics include: formal logic, reasoning errors, argument, propaganda, inference, implications, truth and falsity. Important material, readings, topics for class discussions, excellent and extensive examples from real-life situations. Midwest Publications, #MP 12.01, $9.95 (Bk. 1), #MP 12.02, $4.95 (Bk. 1 Manual); #MP 12.03, $10.05 (Bk. 2), #MP 12.04, $5.95 (Bk. 2 Manual). (Recommended by Diana Reeves, consultant, by Clista Dow, teacher of gifted, Sharon Junior High School; and by Joan Lagoulis, gifted program coordinator, Alaska.)

+ The Unconventional Invention Book. Excellent student worksheets on various invention projects, including exercises in reversing, redesigning, finding new uses, and improving on inventions. Creative Learning Systems, #6297S, $10.99. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

+ The Invention Book. Caney. All about invention--how to start, inventors' workshops, notebooks, prototypes, even patenting and marketing, complete with relevant examples from actual inventions. Creative Learning Systems, #6577S, $8.99.

+ Conceptual Blockbusting: A Guide To Better Ideas. Adams. Games and exercises for limbering mental muscles, and some ideas about how to stay limber. CGT, #T304, $8.95. (Recommended by Diana Reeves, consultant; and by Joan Lagoulis, gifted program coordinator, Alaska.)

+ Philosophy For Children Series: Lisa. In this novel in the series, the focus is on ethical issues. The level is generally Grs. 7-10. Zephyr, #FM05, $8.00 (Lisa), #FM06, $37.50 (Ethical Inquiry, manual for Lisa). (Recommended by Karen Conklin, director of curriculum and instruction, Northampton Public Schools.)

+ Problems! Problems! Problems!.
Odyssey Of The Mind.
OM-AHA! Problems to Develop Creative Thinking Skills. Workbooks which present both long- and short-term problems used in the nation-wide Olympics of the Mind competition. Good for anything from a 4-minute exercise to a year-long project. Good material for teachers on training students to solve these problems. Creative Learning Systems, #8107S, $11.99 (Problems); #5377S, $12.99 (Odyssey); #6267S, $15.99 (OM-AHA). (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School; and by Karen Conklin, director of curriculum and instruction, Northampton Public Schools.)

Language Arts

* Suppose The Wolf Were An Octopus. Bagley and Foley. A wonderful guide to creative and critical questioning for primary grades, based on Bloom's Taxonomy. Questions are presented for about 35 popular books. Trillium, #0875, $9.95. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

* The Other Side Of Reading. A series of wonderful and beautiful exercises in visual thinking, pattern-finding, sequencing, imagery, recall. Good Apple, #GA183, $9.95.

* Robert McCloskey.
Little Bear.
Arthur The Chimp. These are completely equipped enrichment centers which work well as basal supplements or units on their own. ERGO, no numbers, $49.95 each. (Recommended by Carolyn Davis, gifted program coordinator, Southborough Public Schools.)

* Secrets And Surprises. Gentle movement and imagination exercises, which conclude with creative language activities. A lovely book, ready to use with primary grades. Zephyr, #GA11, $7.95.

* Creativity For Kids Through Word Play. A small but useful collection of worksheets on word play and reading. A. W. Peller, #4005LE, $5.95.

* Thinking Skills With Fairy Tales. This is an exceptionally thoughtful and meaty collection of alternative ways of looking at familiar fairy tales--one superb exploration after another, for all grade levels. A rare find, and a good buy. Sundance, #BC05876, $4.95.

* The Whole Word Catalog Vol. 1. Vol. 2. These books from the Teachers and Writers Collaborative contain excellent ideas, examples, and resources for stimulating writing. Seymour, #FS04335, $8.95 (Vol. 1, 72 pp.); #FS04240, $14.95 (Vol. 2, 352 pp.).

*+ McGuffey's Revised Eclectic Readers. Primer-Level 6. Reproductions of our grandparents' basal readers. There is a wealth of activities which can be done with these, in language as well as social studies. Students are entranced by them. A most unusual primary source material, well worth the price. Note that "Level 6" does not mean Gr. 6, etc.; as a matter of fact, both Levels 5 and 6 are adult reading. Van Nostrand Reinhold, no number, $4.50 (primer), $4.50 (1), $5.25 (2), $5.75 (3), $6.25 (4), $6.75 (5), $7.75 (6).

Fact, Fantasy, And Folklore. An unusual collection of activities centering around significant issues raised in fairy tales and a different view of them. Opportunities for discussion and debate. Good Apple, #GA71, $10.95. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

Writing the Natural Way. Rico. A course in enhancing creativity and writing confidence. An excellent description of 7 basic exercises in writing, presented as lesson plans. Students and teacher may proceed through as many levels of exercise as appropriate. Creative Learning Systems, #2737S, $10.99.

Young Authors Conference: Kids Writing For Kids. Dow. A plan for implementing a young writers' conference, including student pages, a list of student publishers, and a bibliography, as well as all details of planning the conference. Zephyr, #WS07, $10.95.

Talking Rocks. A simulation game about the formation of language. Can be played by as few as 6 or as many as a whole class. What is language, anyhow? How is it disseminated? An informative experience for all. Simile II, no number, $5.00.

The Great Books. This well-known program, which can only be implemented by teachers who have participated in the training for it, develops thinking, discussion, and listening skills through guided questioning about popular children's books. The Great Books Foundation (contact for full information). (Recommended by Karen Conklin, director of curriculum and instruction, Northampton Public Schools.)

On Writing Well. Zinsser. An informal classic on writing non-fiction. Extremely useful in helping the teacher zero in on teaching writing skills rather than merely testing for them. Harper and Row, no number, $8.95.

Beyond Words: Writing Poetry With Children. McKim and Steinbergh. A teaching guide with a practical approach to making poems. Examples are student-written. Wampeter Press, no number, $9.95. (Recommended by Nancy Crasco, gifted program coordinator, Arlington Junior High Schools.)

If You're Trying To Teach Kids How To Write, You've Gotta Have This Book! Frank. In spite of the cutesy title, this is a grand compendium of mostly new how-to's, about how to get them to begin, to continue, to write content-oriented things--long and short, and good, activities of all kinds. Zephyr, #IR01, $9.95.

Thinking Through Analogies. Risby. An excellent workbook of analogies problems, including how to analyze them, and giving ample opportunity for students to make up their own, thus becoming producers rather than consumers. Dandy Lion Publications, #GD-59, $6.00.

Verbal Classifications. Bk. A-1. Bk. B-1. Bk. C-1. Black and Black. Students practice recognizing subtle differences in meaning, use, or characteristic of words. Midwest Publications, #MP 48.01, $5.50 (Bk. A-1); #MP 48.02, $5.50 (Bk. B-1); #MP 48.03, $5.50 (Bk. C-1).

Verbal Sequences. Bk. A-1. Bk. B-1. Bk. C-1. Black and Black. These exercises involve vocabulary-building exercises in determining degree, size, rank, or order of words. Students seldom have the opportunity to look so closely at the meanings of words. Midwest Publications, #MP 49.01, $5.50 (Bk. A-1); #MP 49.02, $5.50 (Bk. B-1); #MP 49.03, $5.50 (Bk. C-1).

+ The Write Source. Sebranek and Kemper. An overview of all necessary writing skills, including all elements of good writing. The Write Source, further information unavailable. (Recommended by Nancy Crasco, gifted program coordinator, Arlington Junior High Schools.)

+ Philosophy For Children Series : Suki. The search for meaning through literature, specifically poetry, contrasted with looking for meaning in logic. Zephyr, #FM07, $8.00 (Suki), #FM08, $37.50 (Writing: How And Why, manual for Suki). (Recommended by Karen Conklin, director of curriculum and instruction, Northampton Public Schools.)

+ Wellspring. Splendid studies of poetry--the poetry of real poets--through understanding of rhythm, sound, mood, meaning, and humor. A high quality book of blackline masters. GCT, #L171, $8.95.

Social Studies

* Clowning Around. A complete learning center for primary students, with everything needed to study an exciting subject. ERGO, no number, $49.95. (Recommended by Carolyn Davis, gifted program coordinator, Southborough Public Schools.)

* Arctic Adventure. A complete learning center on this interesting topic, good for use with primary students. ERGO, no number, $49.95. (Recommended by Carolyn Davis, gifted program coordinator, Southborough Public Schools.)

* Springboard. Realistic activities about new dimensions in social studies, including history, sociology, geography, ecology, and comparative cultures. Activity Resources, #AA1131, $7.50. (Recommended by Mrs. Coyne and Miss Mallory, teachers of gifted, Brockton Public Schools.)

Humanus. Students participate in a "survival cell" simulation game and deal with ethical issues. Zephyr, #S101, $15.00. (Recommended by Diana Reeves, consultant.)

Rafa Rafa: A Cross-Cultural Simulation. An absorbing simulation game about learning to appreciate and understand differences in culture. Simile II, no number, $25.00. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

Teaching The Future. A complete teachers' guide to future-oriented education. ETC, no number, $9.95. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

My Backyard History Book. Weitzman, Brown Paper School series. Wonderful activities and projects about local and personal history, far beyond "make your family tree." Creative Learning Press, #304, $7.95. (Recommended by Diana Reeves, consultant.)

Domes: A Project Book. MacGregor and MacGregor. Technical ideas translated into children's terms, teaching about the dome and leading to a simple way of constructing them. Can be used as a math, physics, or architecture topic, or as a way of considering change through time. Lothrop, no number, $6.50. (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

Cowboys. Provides critical and creative thinking activities to use in teaching the history of the west. Good Apple, #GA417, $6.95. (Recommended by Mrs. Coyne and Miss Mallory, teachers of academically gifted, Brockton Public Schools.)

Pioneers. This is a simulation game about decision-making by members of a wagon train on the way west. There are materials for 15-35 students; the game takes 10-15 hours. Interact, #5068, $40.00. (Recommended by Mrs. Coyne and Miss Mallory, teachers of academically gifted, Brockton Public Schools.)

Dig 2 One of a vast number of fascinating simulation games from this publisher, this one is an elaborate and searching simulation of the archeological reconstruction of a vanished civilization, which can be used by 15-35 students over a period of 15-21 hours. Interact, #5030, $40.00. (Publisher recommended by Dr. Ronald Costa, high school and college teacher.)

American History For Gifted Classes. Relates history to present issues and events and encourages students to see how they themselves play a part in history. A. W. Peller, #1529UM, $12.00.

Will You Help Me Create The Future Today? Eggers. A reality-oriented "futuring" workbook of ideas for looking at the relationship of past to present and future. GCT, #F002, $10.95.

We The People: Exploring The U. S. Constitution. Activities which stress critical thinking about the development and meaning of the Constitution. Also includes directions for a simulation of a constitutional convention. A. W. Peller, #5000AP, $8.95.

Who Put The Cannon In The Courthouse Square? Cooper. What questions are asked in historical research, and how are primary sources used to help answer them? Moving way past the encyclopedia. Creative Learning Press, #301, $13.95.

The Amateur Archeologist's Handbook. Robbins and Irving. An excellent and complete step-by-step explanation of how to do archeology. Creative Learning Press, #310, $13.95.

Politics: How To Get Involved. Levenson. How to get involved in working for change at a level realistic for Grs. 5-8. An unusual book about an important topic. Creative Learning Press, #306, $14.95.

Mapping Small Places. Wentworth. How to make maps, real ones, through activities and use of student-made "professional" equipment. Creative Learning Press, #302, $12.95.

Students, Structures, Spaces. Subtitled, "Activities in the built environment." The teacher-tested activities in this book invite students to investigate how we humans have shaped our environment to respond to our needs. An unusual book. Creative Learning Systems, #9017S, $19.99.

The Earthpeople Activity Book: People, Places, Pleasures, And Other Delights. An exciting compilation of unusual and doable open-ended activities and investigations in social studies of all sorts. GCT, #X038, $12.95. (Recommended by Diana Reeves, consultant.)

How To Open Their World With Letters. A fine collection of ideas about communicating and information-gathering done by your class through letter-writing. Not a language arts resource, but a social studies resource. A. W. Peller, #1086KO, $3.95.

Earthshapes Posters. How would the earth look if shaped like a cone? a cylinder? a pancake? Look at these dozen posters and see. Where would the equator be? What is the equator? Excellent for map studies and problem-solving. Creative Publications, #60150, $11.50.

Jackdaws Learning Packages. Over 150 different kits, each containing reproductions of original historical documents and objects of all kinds. This is an extraordinary resource for primary source material. Longman, write for catalog.

The Humanities. Vols. I and II. Witt et al. A valuable resource for teachers in this important topic. Heath, no numbers, $16.95 (each volume); $1.95 (teachers' manual for each volume); $1.95 (tests for each volume). (Recommended by Joan Lagoulis, gifted program coordinator, Alaska.)

+ HumanQuest. Cobb and Cobb. Subtitled "a guide for studying human development." Fourteen areas of human endeavor and expression are explored for their research and study possibilities. Dandy Lion, #GD-17, $7.00. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

+ A Student's Guide To Conducting Social Science Research. Bunker. A nine-step description, with activities, of research design, testing hypotheses, surveys, observation and experiments. Creative Learning Press, #508, $7.95.

+ How To Use Primary Sources. Carey and Greenberg. How to gather information from interviews, paintings, monuments, photographs, documents, diaries, journals, and museums; ideas for sharing the information thus gathered. An important topic. Creative Learning Press, #506, $12.95.

Science

* Wondering: Invitations To Think About The Future For Primary Grades. Torrance and Myers. Units on thinking about self in the future, including personal tastes, transportation, and how things change over time. Student activity book. Creative Learning Press, #701, $12.95.

* Creative, Hands-On Science Experiences. DeBruin. Over 300 interesting investigations in all areas of science. Excellent tie-ins to daily life. A very good resource for teachers of all grade levels. Good Apple, #GA165, $13.95.

* The Young Naturalist. Mitchell. Activities and experiments about plants, birds, insects, mammals, and ecosystems, including collecting evidences for living things rather than the things themselves. Creative Learning Press, #402, $4.95.

* Guppies, Bubbles, And Vibrating Objects: A Creative Approach To the Teaching Of Science To Very Young Children. LaSalle and McGavack. Excellent units of study on rocks, plants, earthworms and other topics, with many ideas for problem-solving. Creative Learning Press, #641, $14.95. (Recommended by Diana Reeves, consultant.)

Solar Power Winners. Ready-to-go, clearly presented discovery activities to demonstrate absorption, retention, reflection, and transmission of solar energy. A whole excellent physical sciences unit. KolbeConcepts, #C0115, $9.50.

Messing Around With Water Pumps And Siphons. Zubrowski. Using the simplest of materials, principles of suction and compression are discovered through a series of interesting experiments. Real science. Tools For Thinking, #LB988774, $6.95.

Messing Around With Baking Chemistry. Zubrowski. Progressively more difficult experiments with simple materials, revealing chemical changes, Real science. Tools For Thinking, #LB988790, $6.95.

Star Gazing, Comet Tracking, And Sky Mapping. You're supposed to teach something about astronomy, but what can you actually have students do? This excellent collection of naked-eye viewing activities provides enough ideas for a fine unit. Putnam, no number, $7.99.

Patterns In Nature. Stevens. A very important basic resource. A gorgeously illustrated discussion of the basic forms nature must assume. Little Brown, no number, $12.45.

Kitchen Chemistry. Gardner. Experiments to do using the sink, stove, refrigerator, and counter. Simple yet valid, with many opportunities for prediction. Messner, no number, $9.79.

The Great Brain. Recent information about the brain and many usable activities in which science and other curriculum areas overlap. Good for an entire unit, easy to use and adapt. Resources for the Gifted, #C0360, $34.00. (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

It's All In Your Head. Barrett. Based on interviews with hundreds of gifted students, and guides readers toward understanding how we think and how we learn. Creative Learning Systems, #4757S, $7.99. (Recommended by Barbara Libby, program consultant.)

Search For Solutions Teaching Notes An enormous compendium, in a sort of newspaper format, of teacher-suggested and tested thoughts and activities focusing on seven basic elements of scientific inquiry: investigation, chance, change, feedback, pattern, modeling, prediction, evidence, and theory. Superb resource, and it's free. Wallis Gideon Wallis, write to request copies of 13 back issues of Search For Solutions Teaching Notes, and to request placement on the mailing list for future editions.

TOPS Physical Science Learning Modules. These sets of task cards plus teachers' manuals develop an understanding of various areas of the physical sciences through very simple open-ended investigations. Unusually easy to use, high quality. TOPS Learning Systems, see below for information on selected task card units.

Pendulums. #01, $6.90
Chemical Analysis. #10, $8.80.
Oxidation. #11, $8.30.
Kinetic Model. #14, $7.90.
Magnetism. #20, $10.50.
Motion. #21, $6.95.
Machines. #22, $6.95.

Blood And Guts. Allison. Brown Paper School Series. "A working guide to your own insides." Information and activities about every part of the body. Excellent for students and teachers alike. Creative Learning Systems, #5207S, $7.99.

Where The World Is: Teaching Basic Skills Outdoors. An outstanding collection of explorations into soil, litter, trees, birds, and neighborhood and environmental problems, ending with activities to help understand oneself and others. A beautiful book. Scott Foresman, no number, $12.95.

Discovering Ecology. Excellent brief descriptions of creative and hands-on discovery activities. D.O.K., #A8202, $5.95. (Recommended by Nancy Crasco, gifted program coordinator, Arlington Junior High Schools.)

Discovering Botany. Excellent brief descriptions of creative and hands-on discovery activities. D. O. K., #A8206, $5.95. (Recommended by Nancy Crasco, gifted program coordinator, Arlington Junior High Schools.)

Gee Wiz! Allison and Katz. Brown Paper School series. Science experiments mostly in physics. Designed for kids, but each chapter could easily serve as a mini-unit too. Dandy Lion Publications, #GL-133, $8.00.

How Fast Do Your Oysters Grow? Smith. A book for kids and teachers about how to prepare a REAL science investigation, as opposed to a library project. How to find questions to investigate, plan your experiment, collect and present data, and report conclusions. Outstanding. Carolina Books, #45-1598A, $9.80.

Predator. A card game for use with 2-6 players to teach about forest food chains. A variety of games can be played. Ampersand Press, no number, $7.95.

Drinking Straw Construction. Zubrowski. A brief but meaty, meaningful activity book for kids about structure, a basic math-science topic. Give the book to students and let them go. Creative Learning Systems, #5197S, $6.99.

+ Science Fare. Saul and Newman. An outstanding guide to educational resources in science and technology, including materials, teaching tips, sources, and other hard-to-get information. A real treasure trove. Creative Learning Systems, #9057S, $14.99.

+ Idea Book For Earth Science Inquiry. Suchman. Highly recommended. Neither a workbook nor a textbook, this encourages students and teachers to formulate theories and work out their implications. A model of scientific questioning. Trillium, #0247, $7.95.

+ The Flying Circus Of Physics. Walker. An appealingly designed book, divided into sections on various aspects of physics; hundreds of questions about everyday phenomena, with answers clearly given and references so you can learn more. (Why does hot water freeze faster than cold water?) Seymour, #FS10736, $16.95.

Mathematics

* The Pattern Factory. Sixty activities involving work with Color Cubes, Pattern Blocks, Cuisenaire Rods, "odds and ends." The emphasis is on pattern-making and finding through small group work focusing on logic and problem-solving. Creative Publications, #10434, $8.50. (Recommended by William Radomski, Advanced Challenge teacher, Newton Public Schools.)

* What Do You Mean By Average? James and Barkin. Simple explanations and illustrations of range, mean, mode, median, sampling, percentages, and graphing. A whole course in itself or use in conjunction with student-gathered data in another subject. Creative Learning Press, #504, $10.95.

*+ Attribute Games And Activities Kit. Includes color cubes, attribute blocks, people pieces, a student/teacher manual with 125 activities, and a set of 80 activity cards. Superb material for all grade levels. Creative Publications, #30409, $45.00. (Recommended by Diana Reeves, consultant; and by Therese McKillop, teacher of gifted, Braintree Public Schools.)

Creating Escher-Type Drawings. This can be used very nicely with the Tessellations book listed below. Many of the artworks of M. C. Escher draw on the material learned in the study of tessellations. Creative Publications, #10650, $13.95.

Problemoids: Math Challenge. Gr. 5 book. Gr. 6 book. McCandliss and Watson. Though grounded in regular scope and sequence of math programs, these workbooks offer opportunities to use 19 important problem-solving skills. Solution cards are provided so that students can check their methods with those of the authors. Trillium, #0441, $25.00 (Gr. 5 Teachers' Manual and Solution Cards), #0336, $3.95 (Gr. 5 Student Book with Problems); #0395, $25.00 (Gr. 6 Teachers' Manual and Solution Cards), #0387, $3.95 (Gr. 6 Student Book with Problems) (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

Tessellations: The Geometry Of Patterns. A rigorous, challenging, and satisfying set of lessons on the mathematics of tessellation (tiling the plane surface). There is much to discover in this mathematically rich topic. Creative Publications, #10655, $12.95. (Recommended by Diana Reeves, consultant.)

Good Time Math Event Book. Seventy explorations in math that are fun and hard, including geometry, number, measurement, statistics and probability, and functions and graphs. Each presented in an attractive format on one or two pages. Creative Publications, #10075, $11.50.

Math For Smarty Pants. Burns. Brown Paper School Series. A do-it-yourself collection of explorations for gifted math students. The next step up from the I Hate Math book. Creative Publications, #20578, $8.25.

The I Hate Mathematics Book. Burns. Brown Paper School Series. A wonderful book for kids full of fascinating experiences in mathematics (as opposed to arithmetic) in the world around them. Creative Publications, #20570, $8.25.

TOPS (Techniques Of Problem Solving) Gifted Elementary Deck. A wide variety of challenging problem-solving activities on 240 cards. Good for intermediate too. Seymour, #FS01142, $41.50 (Grs. 3-6). (Recommended by Barbara Libby, program consultant.)

REACH Series. Get The Message: Communication. Math applied to everyday living, this develops many skills in an interesting manner, including material about Braille, Morse code, homing pigeons, tv, etc. Activity Resources, #DS01436, $6.50. (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

Spatial Problem Solving With Cuisenaire Rods. Excellent for developing spatial perception. Cuisenaire Co., #30710, $6.95. (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

Mathematical History: Activities, Puzzles, Stories, and Games. Excellent resource that can be used immediately for acquainting students with the development of mathematical ideas. Includes reading for information as well as game and puzzle activities. A. W. Peller, #5042TM, $6.00. (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

Activity Cards For Tangrams. Excellent enriching mathematics activities using tangrams, not the usual "make a cat," etc. Activity Resources, #E8610, $6.50. (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

Aftermath. Each of the four books contains over 100 pages of enjoyable puzzles, games, and other activities which will enrich the regular math curriculum. Creative Publications, #10041, $9.50 (Aftermath 1), #10042, $9.50 (Aftermath 2), #10043, $9.50 (Aftermath 3), #10044, $9.50 (Aftermath 4). (Recommended by Gail Casson, gifted resource teacher, Bridgewater Public Schools; and by Therese McKillop, teacher of gifted, Braintree Public Schools.)

Problem Parade. A complete course in word problem solving for Grs. 4-6. Sixteen 3-problem sets in different math topics (including operations, geometry, statistics, fractions), each with a worksheet and a full page of teacher's notes on the back, including extension activities for math whizzes. Highly recommended. Seymour, FS01425, $10.95.

Math Doins For High Achievers. Sixty fascinating activities and problems for all sorts of independent investigations. GCT, #M035, $3.95.

Math In Nature Posters. Eleven gorgeous photographs of natural objects, illustrating the basic mathematical patterns of snails, flowers, crystals, and others. Creative Publications, #62000, $12.95.

Pebble Math Activities. A sort of a workbook with pages and pages of mathematical discovery games to be played with small pebbles or other small objects. Totally absorbing, highly visual, unusual and fun. Creative Publications, #10105, $7.50. (Pebbles, 10 bags of 40 pebbles each, #10107, $5.00.) (Recommended by William Radomski, Advanced Challenge teacher, Newton Public Schools.)

+ Designs From Mathematical Patterns. Bezuszka, Kenney, Silvey. Resource for design ideas following the study of modular arithmetic, number patterns, Magic Squares, etc., with spectacular results. Creative Publications, #10750, $10.95. (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

+ What Are My Chances? Bk. A, Grs. 4-6. Bk. B Grs. 7-9. Outstanding workbooks on the important subject of probability. Clearly presented concepts and enjoyable activities to do in this interesting topic. Creative Publications, #10670, $9.25 (Bk. A); #10671, $9.25 (Bk. B).

+ Calculator Explorations And Problems. Including computation, problem-solving, exponents, decimals, estimation, and "problems for experts." Creative Publications, #10570, $6.95.

+ SPACES. From the famed Lawrence Hall of Science. Activities designed to stimulate student interest in a number of careers which involve math. Emphasis on design and construction, visualization, tools, attitudes, job requirements, and women in careers. Seymour, #FS07401, $13.50. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

+ When Are We Ever Gonna Have To Use This? Saunders. Over 100 occupations and the kinds of math they require, arranged by occupation, math content, and level of difficulty. Fascinating. Seymour, #FS01343, $8.50 (book); #FS01344, $4.95 (poster summary). (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

+ Tigo Puzzles. A very challenging math game for individual or group, sort of like magic squares only using several operations. A great game that students love. Ward and Sons, #500, $19.95 (board game for entire class); #400, $8.00 (board game for 2-4 students); #100, $3.45 (puzzles for average students Gr. 6 and up); #200, $3.45 (puzzles for advanced students Gr. 6 and up).

+ Developing Skills In Estimation. Bk. A Grs. 6-7. Bk. B Grs. 8-9. Wonderful activities and projects of all kinds for teaching this vital and neglected skill. Suitable for Grs. 4-6 as well. Activity Resources, #DSO1161, $8.95 (Bk. A); #DSO1163, $8.95 (Bk. B).

Visual Studies

* Line Designs. A wonderful enrichment workbook showing how to make beautiful geometric constructions and designs. A favorite of many students at all grade levels. Creative Publications, #10031, $8.50. (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

* Make Your Own Animated Movies. Anderson. Carefully illustrated explanations of five different ways to make animated movies, including how to set up the camera, animate, project, edit, and add sound. Creative Learning Press, #206, $16.95.

Playful Perception. Leff. Subtitled "Choosing how to perceive your world." A unique collection of invitations to take a different point of view in vision. This is a superb resource, not to be missed. A. W. Peller, #9070TF, $9.95.

Seeing Shapes. An excellent collection of visual-spatial exercises, including perspective and symmetry. Creative Publications, #10250, $8.50.

Drawing On The Artist Within. Edwards. A guide to innovation, invention, imagination, and creativity through exercises in perception. Zephyr, #SS02, $18.95.

Drawing On The Right Side Of The Brain. Edwards. A course in enhancing creativity and artistic confidence. Zephyr, #SM01, $9.95. (Recommended by Barbara Libby, program consultant.)

Patterns. Observe and organize visual and number sequence data deductively to recognize a pattern. Midwest Publications, #MP 6.21, $5.95. (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

Figural Mind Benders. Bk. A-1 (easy). Bk. B-1 (medium). Bk. C-1 (hard). Bronniché. These are fascinating visual logic puzzles involving deductive reasoning. This is a kind of exercise seldom practiced in the regular classroom. Midwest Publications, #MP 67.01, $5.95 (Bk. A-1); #MP 67.02, $5.95 (Bk. B-1); #MP 67.03, $5.95 (Bk. C-1).

Thinking Visually. McKim. A very complete discussion and set of exercises designed to improve function of the mind's eye. A classic book. Seymour, #FS08624, $16.95. (Recommended by Diana Reeves, consultant.)

Mindscapes. "An alternative art book," about how to look and see. Wonderful, simple projects about color, space, form, design, mood, perspective, and the meaning of art. Critical thinking skills through the medium of the visual arts. A very special book. A. W. Peller, #5028VY, $10.00.

+ Art Synectics. Roukes. A marvelous, profusely illustrated collection of exercises using imagination, analogies, and art. Transforming the ordinary into the new. An important resource. Creative Learning Systems, #6837S, $14.99.

Collections Of Varied Activities

* Change For Children. Revised Edition. Kaplan and Kaplan. Twenty-one ready-to-use centers, plus 50 worksheets. An excellent approach to classroom openness. GCT, P086, $12.95. (Recommended by Diana Reeves, consultant.)

* Affective Cognitive Thinking: A. C. T. I. A student workbook with excellent high-quality activities in all content areas, including some good ideas for primary aged students as well as older students. An incredible bargain! Penns Valley Publishers, no number, $3.00.

Mythology, Architecture, And Archeology. A rich source of information and activities. Pre- and post-tests included. Tools For Thinking, #LW901, $8.95. (Recommended by Therese McKillop, teacher of gifted, Braintree Public Schools.)

Design-A-Project. Draze. Three sections of pages can be combined and recombined to make over 100,000 project ideas, with varied topics, processes, and products. Like the author's other material, definitely a cut above the average. Dandy Lion Publications, #GD-1, $12.00.

+ Tracking Down Trivia. Page upon page of "trivia" research challenges, in a kind of word game format. Single students, small groups, or a whole class can work on one puzzle. Involves all kinds of research materials. Good Apple, #GA423, $5.95.

Periodicals For Teachers And Parents

Challenge: Reaching And Teaching The Gifted Child. A resource of ideas and activities for teachers, administrators, and parents of the gifted. Good Apple. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

The Gifted Child Today. (Formerly G/C/T/.) Articles on identifying and educating the creative and gifted, including materials reviews and directories of events. GCT. (Recommended by Barbara Meyer, gifted program coordinator, Brookline Public Schools.)

Gifted Children Monthly. Perhaps the best of the lot. Though not extensive, contains no-nonsense articles on an exceptionally great variety of topics of interest to parents and teachers. Also carries pages for the children themselves. Gifted Children Monthly. (Recommended by Diana Reeves, consultant; and by Barbara Meyer, gifted program coordinator, Brookline Public Schools.)

Exploratorium Quarterly. An exciting journal of informal science teaching and understanding published by the famous hands-on science center in California. Exploratorium.

World Newsmap. A rich resource in social studies, with news of the week, maps, and excellent, meaningful activities. General Learning Corporation. (Recommended by Annmarie Adreani, resource teacher, Needham Public Schools.)

Educational Leadership. Although not especially focused on gifted, probably the most intelligent education journal around. Highly recommended, as is membership in its parent organization, Association for Supervision and Curriculum Development. ASCD.

Gifted Child Quarterly. Articles on pilot programs, demonstration projects, and research. NAGC. (Recommended by Barbara Meyer, gifted program coordinator, Brookline Public Schools.)

Journal For The Education Of The Gifted. A scholarly journal focusing on research and education. CEC. (Recommended by Barbara Meyer, gifted program coordinator, Brookline Public Schools.)

Journal Of Creative Behavior. Research on creativity, creative problem solving, and creative education. Creative Education Foundation. (Recommended by Barbara Meyer, gifted program coordinator, Brookline Public Schools.)

The Roeper Review. Academic, philosophical, and moral issues of gifted education. Includes excellent book reviews. Roeper. (Recommended by Barbara Meyer, gifted program coordinator, Brookline Public Schools.)

The Creative Child And Adult Quarterly. A research and education-oriented journal on creative and gifted persons. Good for both parents and teachers. NACCA. (Recommended by Barbara Meyer, gifted program coordinator, Brookline Public Schools.)

Periodicals For Children

Games Magazine. A monthly treasure-trove of puzzles and games, supposedly for adults, but kids love it too. Games. (Recommended by Clista Dow, teacher of gifted, Sharon Junior High School.)

Read. A magazine by Weekly Reader for junior high age, but has excellent topics for research and projects. Weekly Reader. (Recommended by Betty Gilson and Mrs. Tennihan, teachers of gifted, Brockton Public Schools.)

Creative Kids. (Formerly Chart Your Course.) A magazine by kids for kids, with articles, poetry, puzzles, photography, etc. by creative students. GCT.

Cricket Magazine. Includes stories, jokes, contests, art, and poetry. High literary quality. Cricket.

Cobblestone. A children's journal of history. Cobblestone.

Penny Power Magazine. Consumer education for kids, a fascinating and important topic. Lots of activities too. Consumers Union.

National Geographic World. As beautiful and interesting as its parent magazine. National Geographic.

Odyssey. A student magazine about astronomy and space. Odyssey.

3-2-1 Contact. Published by Children's Television Workshop, containing articles and activities about all kinds of science. CTW.

Free Spirit: News And Views On Growing Up Gifted. For gifted young people, on making friends, setting goals, dealing with school, and other important topics. Will accept student work. Free Spirit.

PUBLISHERS' ADDRESSES

Activity Resources, Box 4875, Hayward CA 94549.

American Association For Gifted Children, 15 Gramercy Park, NYC NY 10003.

Ampersand Press, 691 26th St., Oakland CA 94612.

Association For Supervision And Curriculum Development, 125 N. West St., Alexandria VA 22314.

A. W. Peller, 249 Goffle Rd., Box 106, Hawthorne NJ 07507.

Ballantine, 400 Hahn Rd., Westminster MD 21157.

Bearly Limited, 149 York St., Buffalo NY 14213.

Carolina Books, Carolina Biological Supply Co., 2700 York Rd., Burlington NC 27215.

CEC, Council For Exceptional Children, 1920 Association Dr., Reston VA 22091.

Cobblestone, 20 Grove St., Peterborough NH 03458.

Consumers Union, Box 1906, Marion OH 43302.

Coronado Publishers, 3800 Lakeville Highway, Petaluma CA 94952.

Creative Education Foundation, State University College at Buffalo, 1300 Elmwood Ave., Buffalo NY 14222.

Creative Learning Press, Box 320, Mansfield Center, CT 06250.

Creative Learning Systems, 9889 Hibert, Suite E, San Diego CA 92131.

Creative Publications, 5005 West 110th St., Oak Lawn IL 60453.

Creative Teaching Press, 15598 Producer Lane, Huntington Beach CA 92649.

Cricket, Box 2672, Boulder CO 80321.

CTW, Box 2933, Boulder CO 80322.

Cuisenaire Co. Of America, 12 Church St., Box D, New Rochelle NY 10802.

Dandy Lion, Box 190, San Luis Obispo CA 93406.

Dell, 1 Dag Hammarskjold Pl., 245 E. 47th St., NYC NY 10017.

D.O.K., Box 605, East Aurora, NY 14052.

ERGO, Box 245, New Gloucester ME 04260.

ETC, Order Dept., Box ETC, Palm Springs CA 92263-1608.

Exploratorium, 3601 Lyon St., San Francisco CA 94123.

Free Spirit Publishing, 123 N. Third St., Suite 716, Minneapolis MN 55401.

Games Magazine, Box 10145, Des Moines IA 50340.

GCT Inc., 314-350 Weinsacker Ave., Box 6448, Mobile AL 36660-0448.

General Learning Corp., Curriculum Innovations Group, 3500 Western Ave., Highland Park IL 60035.

Gifted Children Monthly, Box 115, Sewell NJ 08080.

Good Apple, Box 299, 1204 Buchanan St., Carthage IL 62321-0299.

Great Books Foundation, 40 East Huron St., Chicago IL 60611.

Harper And Row, Keystone Industrial Park, Scranton PA 18512.

Heath, Distribution Center, 2700 Richardt Ave., Indianapolis IN 46219.

Interact, Box 997F, Lakeside CA 92040.

KolbeConcepts, Box 15050, Phoenix AZ 85060.

Learning Works, Box 6187, Santa Barbara CA 93160.

Little Brown, 200 West St., Waltham MA 02254.

Longman, Schools Division, 19 West 44th St., NYC NY 10036.

Lothrop Lee And Shepard, Wm. Morrow and Co., Wilmore Warehouse, 6 Henderson Dr., West Caldwell NJ 07006.

Macmillan, Front and Brown Sts. Riverside NJ 08370.

Messner, 1230 Avenue of the Americas, NYC NY 10020.

Midwest Publications, Box 448, Pacific Grove CA 93950.

NACCA, National Association For Creative Children And Adults, 8080 Spring Valley Dr., Cincinnati OH 45236.

NAGC, National Association For Gifted Children, 4175 Lovell Rd., Suite 140, Circle Pines MN 55014.

National Geographic, Box 2330, Washington DC 20013.

NS/LTIG/T, National/State Leadership Training Institute On The Gifted And The Talented, Ventura County Superintendent of Schools, 535 East Main St., Ventura CA 93009.

Odyssey, Box 92788, Milwaukee WI 53202.

Penns Valley Publishers, 1298 S. 28th St., Harrisburg PA 17111.

Pergamon Press, Fairview Park, Elmsford NY 10523.

Putnam Publishing Group, 200 Madison Ave., NYC NY 10016.

Resources For The Gifted, Box 15050, Phoeni : AZ 85060.

Roeper Review, 2190 N. Woodward, Bloomfield Hills MI 48013.

Scott Foresman, 1900 E. Lake Ave., Glenview IL 60025.

Seymour Publications, Box 10888, Palo Alto CA, 94303.

Simile II, Box 910, Del Mar CA 92014.

Simon And Schuster, Touchstone Books, Rockefeller Center, 1230 Avenue of the Americas, NYC NY 10020.

Sundance, Box 1326, Littleton MA 01460.

Synergetics, Box 84, East Windsor Hill CT 06028

Thinking CAPS, Box 7239, Phoenix AZ 85011.

Tools For Thinking, 325 E. Wyandotte St., Stockton CA 95204.

TOPS Learning Systems, 10970 S. Mulino Rd., Canby OR 97013.

Trillium Press, Box 209, Monroe NY 10950.

Van Nostrand Reinhold, VNR Order Processing, 7625 Empire Dr., Florence KY 41042.

Wallis Gideon Wallis, 5319 South Lewis, Tulsa OK 74105.

Wampeter Press, Box 512, Green Harbor MA 02041.

Ward And Sons, Box 2941, Spartanburg SC 29304.

Weekly Reader, 245 Longhill Rd., Middletown CN 06457.

Write Source, Box J, Burlington WI 53105.

Zephyr Press, 430 South Essex Lane, Tucson AZ, 85711.

FILMS AND VIDEO

Following is an annotated listing of a selection of unusual films and video, all available from:

Boston University Film/Video Library
565 Commonwealth Ave.
Boston MA 02215
617-353-3272.

The one-day rental cost is indicated in the listing. All of these are of potential interest to gifted students; please note, however, that they have not been previewed for the most part (unlike print materials).

P= K-3
I= 4-6
J= 7-9
S= 10-12
A= Adult
G= All Ages

Although these are the age levels suggested in the BU catalog for these materials, most of them will be suitable for viewing by much younger gifted students, especially with teacher guidance.

Arts

Johann Sebastian Bach. 1974. Bach's music as performed on a number of instruments (including rock band and synthesizer); also includes dance to some selections. J-S-A. 27 minutes, color, $15.50.

Claude Debussy. 1975. Renoir, Monet, and the music of Debussy. J-S-A. 28 minutes, color, $15.50.

Casals Conducts. 1968. Pablo Casals rehearses a Bach Suite, gradually bringing the orchestra to the finished performance. Academy Award winner. I-J-S-A. 17 minutes, b & w, $5.50.

Listen! 1972. Invitations to "see" and "feel" music, complemented by visual images. G. 10 minutes, color, $9.00.

Musical Forms: The Canon. 1978. Using animation and photography, explores the various forms of the canon or round, from Tallis and Bach to rock. Introduction to counterpoint, repetition, and various instruments. I-J-S-A. 18 minutes, color, $15.00.

Color Is A Day. 1972. A series of images of a day in the desert, canyons, clouds, rain, city, beach, wind. A special way to see color and rhythm. G. 10 minutes, color, $9.00.

Junkyard. 1968. Amidst the twisted, rusting wreckage of the junkyard is a world of beauty in form and color. I-J-S. 10 minutes, color, $8.00.

City I See. 1972. Dawn and life come to the city, the changing blends of buildings and people reveal unexpected beauty. I-J-S-A. 14 minutes, color, $13.00.

The Sand Castle. Sand animation: the sandy creatures build a fairy castle which is destroyed by the wind. G. 14 minutes, color, $13.00.

Film: Art of the Impossible. 1972. A behind-the-scenes look at famous sequences in a number of movies, to demonstrate the tools of the director's trade. I-J-S-A. 30 minutes, color, $15.50.

Brake Free. 1972. A ride down the cog railway of Mt. Washington through the eyes of a child. Images complemented by the music of Beethoven. P-I-J. 7 minutes, color, $8.00.

Creativity

Life Times Nine. 1974. An anthology of nine short films made and directed by students ages 11-16, each one a "commercial for life." G. 15 minutes, color, $13.00.

Flight Of The Gossamer Condor. 1978. An exciting story of inventiveness and perseverance, about the design of a human-powered aircraft. A wonderful film. J-S-A. 27 minutes, color, $18.00.

Why Man Creates. 1969. All about creativity, including society's reactions to the creative. J-S-A. 28 minutes, color, $15.50.

Watching A Woodcarver. 1982. About the pride of workmanship and joy in creating things in wood, from concept to execution. I-J-S-A. 12 minutes, color, $9.00.

The Beginning. 1972. One person (in this case a wiggleman) dares to be different. The skeptics eventually follow his creative lead. I-J-S-A. 5 minutes, color, $8.00.

Break On Through. 1973. Why do people climb mountains? This unnarrated film explores the bodies and minds of two climbers as well as the mountain they climb. J-S-A. 14 minutes, color, $10.50.

Climb. 1974. Exploring the values of self-reliance, testing oneself, and setting limits, and the exhilaration of reaching the goal. J-S-A. 22 minutes, color, $13.00.

Solo. 1971. Another mountain climbing film, celebrating the commitment to challenges which must be met alone. I-J-S-A. 15 minutes, color, $10.50.

The Man Who Skied Antarctica. 1980. The skier seeks self-discovery through challenge and perseverance. J-S-A. 18 minutes, color, $15.00.

Free To Be...You And Me. 1974. Independence, cooperation, and self-fulfillment for boys and for girls are celebrated in this truly life-enhancing festival of songs and stories. G. 42 minutes, color, $29.00.

Natural History

Gorilla. 1981. Gorilla behavior and research into the life of this gentle and shy animal. Includes footage of Koko, the gorilla who uses American Sign Language. G. 60 minutes, VHS, $10.00

A Desert Place. 1976. A visually elegant study of an ecosystem, one of the Nova science series from PBS. I-J-S-A. 30 minutes, color, $18.00.

Castles of Clay. 1979. An extraordinary film about life within the African termite mound. A classic film by wildlife photographer Alan Root. Worth far more than the price. J-S-A. 55 minutes, color, $39.00.

The River. 1939. This great classic documentary is worth viewing on a number of levels: as a period piece from the Depression; as an important account of the Mississippi River, its floods and erosion resulting from poor conservation techniques; as part of an examination of changing attitudes toward the natural world; and not least, as a fine piece of filmmaking. S-A. 32 minutes, b & w, $9.80.

Grand Canyon. 1961. A panoramic tour of the Grand Canyon, accompanied only by the music of the Grand Canyon Suite. By Disney. I-J-S-A. 29 minutes, color, $15.50.

Ark. 1971. "Dramatizes the story of one man's attempt to protect and maintain a clean pond by enclosing it in a glass house...But rats, and finally men, violate and destroy the pond." J-S-A. 20 minutes, color, $15.00.

The World of Up-Close. 1973. A very careful examination of the tiniest details of familiar objects; the microorganisms in a birdbath; and a slow-motion study of falling raindrops. P. 9 minutes, color, $8.00.

Social Studies

Goodbye Billy: America Goes To War. 1974. "Moves from psychological preparation to tragic homecoming. An unusual vintage of archive film footage with period voices and songs. Inquiry oriented." J-S-A. 25 minutes, b & w, $8.50.

The Autobiography Of Miss Jane Pittman. 1974. This feature film traces the life of a slave child just at the time of the Emancipation Proclamation, through 110 years of black history. Outstanding acting by Cicely Tyson. A gripping story. J-S-A. 107 minutes, color, $75.00.

American Diary Series. 1984. A series of 12 films of periods in American history, all using original source material from each period. These would appear to be excellent resources. J-S-A. Each 24 or 25 minutes, b & w, $18.00 each. Titles in the series:

New Beginnings (1895-1904
The Brave New Age (1903-1912)
Winds Of Change (1912-1916)
Clouds Of War (1916-1917)
The Great Campaign (1917-1918)
The Price Of Peace (1917-1918)
The Rites Of Passage (1919-1920)
The Best Of Times (1920-1924)
Coming Of Age (1924-1928)
Power And Prejudice (1926-1928)
The Tarnished Dream (1929-1931)
The Passing Storm (1931-1933)

Ishi In Two Worlds. 1967. This is a poignant film about the last member of a California Indian tribe, "the last person in North America known to have lived a totally aboriginal existence." In 1911 he was taken to a museum of anthropology in California, where he lived until his death. S-A. 19 minutes, color, $13.00.

Houses Have History. 1980. A group of students explore the history to be discovered in old houses and buildings. I-J. 15 minutes, color, $13.00.

Remember Me. 1980. (Pyramid Version) The voices and images of children all over the world, their lives and needs and potential, are contrasted with the hardship in which many of them live. I-J-S-A. 15 minutes, color, $13.00.

This Tiny World. 1973. Wonderful tiny moving toys of the past, when children were supposed to be little grownups. An Academy Award winner. G. 15 minutes, color, $13.00.

Nails. 1980. (NFBC Version.) Without narration, uses the process of making nails to illustrate a changing relationship to work, from the individual craftsperson to the modern automated factory. J-S-A. 14 minutes, color, $13.00.

Science And Mathematics

Powers Of Ten. 1978. A wonderful classic film which takes us on a journey through 40 powers of ten from the cosmic distances of the universe into the heart of an atom. S-A. 9 minutes, color, $9.00.

Flatland. 1965. An award-winning classic about a Square who lives in Flatland and his terrifying and puzzling encounter with the third dimension. J-S-A. 12 minutes, color, $8.00.

Allures. 1970. A visually and intellectually elegant voyage into the reaches of outer space. J-S-A. 8 minutes, color, $8.00.

Design And Nature. 1977. The shapes of the natural world are revealed; their translation into human-made structures is detailed. J-S-A. 18 minutes, color, $15.00.

Aspects Of Symmetry. 1982. A corps de ballet illustrates types of symmetry, which are then further explored by an architect, a biologist, an artist, and a physicist. I-J. 18 minutes, color, $15.00.

Symmetry. 1982. An unnarrated look at reflection, rotation, and translation set to music. I-J-S-A. 11 minutes, color, $9.00.

Mathematical Peep Show. 1973. Using animation and photography, this illustrates five interesting non-arithmetical problems in mathematics. I-J. 12 minutes, color, $8.00.

Circle Circus. 1979. Unnarrated animated exploration of the properties of circles. I-J-S-A. 8 minutes, color, $9.00.

Language Arts

Haiku. 1972. (Stanton version) Vivid photography and an original musical score help capture the beauty and simplicity of haiku Japanese poetry. P-I. 14 minutes, color, $10.50.

Langston Hughes. 1971. A biography of this important poet, his life in Harlem, and his poetry. J-S-A. 24 minutes, color, $15.50.

Really Rosie. 1976. The great story by Maurice Sendak about Rosie, a unique personality, and her friends. P-I. 26 minutes, 16 mm, $18.00; VHS, $13.00.

The Rainbow Serpent. 1979. Using authentic tribal music and sound effects, the Aboriginal legend of the origin of life in Australia is shown. P-I. 11 minutes, color, 9 minutes.

The Little Prince. 1979. The classic story of the inhabitant of a tiny planet and his responsibilities and self-discovery, in a version using clay animation. G. 27 minutes, color, $18.00.

The Giving Tree. 1973. The provocative story about the nature of giving and receiving, and love, between a boy and an apple tree. G. 10 minutes, color, $8.00.

Story Of A Book (Second Edition). 1979. Follows author Marguerite Henry as she creates and writes a children's book; how the illustrations were done; editing; and final production of the book itself. I-J-S-A. 16 minutes, color, $13.00.

All The Troubles Of The World. 1978. The Isaac Asimov story about what happens in the world of the future when the giant Multivac computer directs all of human affairs. I-J-S-A. 24 minutes, color, $18.00.

NOW WHAT? SUGGESTIONS FOR USING MATERIALS

Well, now that you have the materials you ordered, what do you do with them? Following are some general suggestions about using commercial printed and visual materials.

Generic Suggestions For Using Printed Materials

o Commercial materials are seldom best made use of "as is." Like teachers' manuals which present "scripts" ("Now say, 'Open your books to page 5.'"), slavish use of someone else's materials, no matter how good, tends to remove from the teaching act the immediacy of personality of teacher and student, and the excitement of spontaneity and discovery. If the content and structure of the material is not passed through the medium of the individual teacher, so to speak, sooner or later will come a point of confusion, breakdown, or irritation with the material.

o Material can be studied like a textbook, for ideas about scope, sequence, and content of a unit of one's own. But no point in reinventing the wheel; if the author has some good ideas, you've paid for the item, by all means go ahead and use it to the fullest extent. Especially as you begin to plan curriculum for a new program, using others' ideas is useful in saving precious time and energy.

o However, puzzles, brain teasers, "creative exercises," etc., should not be viewed as ends in themselves, no matter how enjoyable and challenging. The main focus of using such items should be to teach students how to solve them, rather than simply testing students to see if they can solve them. There must always be an element of transfer in such exercises from the specific printed page to the students' repertoire of thinking skills generalizable to any area.

o Often we may take a look at material and think with some skepticism that the suggestions may be fine if we too had a full day a week with kids, or a complete science lab, or a fully equipped resource room, or whatever. But rather than discarding elaborate material as not suitable for our particular use, perhaps it can instead serve as a source of inspiration. A whole book about a gigantic year-long unit on inventing might for instance suggest a one-shot project using materials already present in the classroom, or about to be thrown out from the art closet.

o One of the best uses of materials is to provide a variety of ways to make the same point. Supposing you are teaching students about taking different points of view, or about comparison and contrast. Many materials suggest ways to do this, each with its own slant. Being able to pick and choose among the printed offerings for different examples of the same point lends a depth and breadth to the teaching which trains the teacher as well as the students. Eclecticism is instructive in many ways!

o Another very important use of printed material is as models for kids to produce their own. Solving puzzles, working out inventions, brainstorming for ideas are all worthwhile and challenging activities. But far more challenging, and far more complete as a teaching device, is asking kids to make up their own puzzles, invention challenge, problem situation, or whatever, using the specific material as a model. By inviting students to use material as a model for producing as well as an assignment given by the teacher for their consumption, a sense of power over the material results.

o Although you may not wish to adopt printed material in its entirety, it's a good source of homework assignments or projects. Of course, it goes without saying that homework assignments and projects should always illuminate or explore the topic at hand, rather than being mere exercises for parents' night.

o Printed material is a good vehicle for outreach to the adult community, too. A lending library of your materials can be made available to parents and classroom teachers. This is an easy way of extending the services of your program beyond the time you meet directly with identified students. If you use a kind of library card checkout system, with a form for borrowers to fill out and return to you upon receipt of materials, and a reminder form you can send them when materials are to be returned, you can avoid nearly all loss.

o High quality materials can also serve as the focus of informal teacher inservice workshops. Bringing some materials around to each elementary school, giving teachers some experience in using them, and then giving teachers the chance to borrow the materials is an effective way of spreading your message and creating goodwill.

Generic Suggestions For Using Visual Material

Visual materials--films, filmstrips, video--have an immediacy which make them unique as teaching tools. Without the intermediary of verbal language, students and teacher are free to explore the personal meaning of the things they see, unhampered by the words which name those things. The visual language is created anew by each person.

o Visual materials which are designed purely as pedagogy can of course be used as an introduction or supplement to or summary of classroom teaching. An interesting idea, if using either as prelude or close, is to show the material without narration and let students describe what they have seen, or think they have seen.

o There is nothing so useful as visual material to provide time or place travel! Sometimes, too, an older film or filmstrip embodies clues as to its age. Try looking at it from that point of view, rather than the point of view originally intended. Students can be detectives, searching out visual indicators of time and place.

o Separate the content from the visual presentation. Challenge students really to see the material, its forms, sequence, colors, pacing, energy levels. Does it shift rapidly from scene to scene, or linger? Are frames visually busy or serene? Is color used to convey any kind of information? Does it seem that the images were selected for beauty, or solely for instruction? After they have seen it, do students remember any images from the presentation? Why might this be? Ever increasing amounts of information are gained through images; how attuned are students to really seeing?

o Certain kinds of visual material are wonderfully suited to the creation of mood. Like poetry, some visual experiences are best simply presented, absorbed in the privacy of each child's mind and imagination, and not discussed. Nothing kills a delicately structured and finely felt emotion more brutally than a half-hour dissection of it. Maybe better to write than to analyze.

o A wonderful exercise is to present several visual materials on the same topic and invite students to make careful responses to the important questions, How were they alike? and How were they different? You may have to show the materials several times.

o As with printed material, visual material makes a fine invitation to produce one's own. You've just seen a filmstrip on erosion? How might the class prepare one of its own? The kindergarten is studying magnets; can your group prepare a set of slides and narration to teach them some new things about magnets?

o Combining the two previous suggestions can involve evaluation of a particular material, whether from a pedagogical or visual point of view. The class may then decide on ways to improve upon it.

o A vivid demonstration of point of view can be made by showing a few frames of a film or filmstrip and asking students to write a description of what they saw. What things did everyone notice? What things did only a few see? Why might this be true? Do they find that there are disagreements as to what was presented?

o Finally, of course, you can have a film or filmstrip festival, purely for the pleasure of it. Do the art, music, English, social science, or science departments in your high school have some interesting visual material which you could borrow?

Using Materials In The Curriculum Areas

Reading And Writing

Although trade books are not included in this listing, surely a wonderful thing to be done for your gifted students is to read aloud to them. Because your group is at a more advanced level, you can choose books appropriately. How about ending each class during the year with ten minutes of reading aloud? (No one is ever too old for the joy of being read to.)

Assisting students in learning to read and listen critically, to identify assumptions and points of view, and to evaluate the effectiveness of written material is most important. Experiences in comparing resources are also very valuable. For instance, how do different encyclopedias cover the same entry?

Many materials offer suggestions for stimulating student writing. Approaches which encourage students to see the written word as another form of the spoken word are most liberating and productive. But the gifted student needs to move beyond the initial writing into an exploration of how to refine his or her work, techniques which sharpen the written language. Development of vocabulary is useful, but probably more valuable is practice in the precise use of the vocabulary. Examining many writers and learning to analyze their styles is a very useful exercise for student writers.

Mathematics
Probably the most productive use of materials in math is as a source of ideas for topics which are not arithmetic-oriented. Mathematics is such a huge field, and so little of it is arithmetic, which in turn is the part focused on almost entirely in school. Although you may not be able to offer acceleration as an option for the gifted math student, many good materials offer suggestions for alternative math explorations.

Science
The best science materials for gifted are those which encourage the posing of questions, rather than simply describing experiments to carry out as ends in themselves. Material which suggests to students that they find out "What would happen if...?" is most useful. What is not useful is material which simply describes a grab bag of flashy demonstrations or experiments which are expected to have a particular outcome. There must be some development of content as opposed to a scattershot approach. This is most useful for the teacher too, especially for teachers whose knowledge of science content may be uncertain.

The physical sciences are especially neglected in the regular classroom. Since they are the basis for all other sciences, it is particularly important to give students the chance to explore them.

Social Studies
Using, and learning how to use, primary sources of information about the social studies is a very important goal for the gifted in this content area. Once again the focus should be on producing new knowledge, rather than being consumers of facts which others have discovered. Material should emphasize investigation of the meaning and significance of information.

OUTLINES OF UNITS USING SELECTED MATERIALS

These outlines are just that--sketches of units which might be planned for Grs. 1-6 using some of the print materials in the preceding list. Most of the suggested activities are drawn directly from the material indicated; however, expansions and extensions of the material are described in most of the units. Grade levels are, of course, flexible.

Grade 6 - Language Arts

Material: McGuffey's Eclectic Readers Reproductions. (Van Nostrand Reinhold)
Topic: Using basal readers of the past and present to examine language usage.

1. Present McGuffey's Readers in historical context, being certain that students understand that "Level 3," etc., does not correspond to Gr. 3, but rather was to be read following Level 2, whenever it might have been finished. Many students read only one or two levels during their entire school career. Read aloud a number of stories from several levels of the Readers. Invite students to note down language usage which seems unusual. Discuss and classify their findings; discuss possible reasons for the differences. (Note: students will find that for the most part it is not so much the vocabulary itself which is striking, but the way in which it is used, and the syntax. Students are usually delighted with the stories.)

2. Assign a McGuffey story to each small group of students. Invite them to use text and pictures to discuss differences and similarities between the world portrayed in McGuffey time and the present. As a group, pool findings and classify differences and similarities. What explanations might be made for their discoveries?

3. Discuss lessons taught in modern children's literature with which the students are familiar. What values are presented? What does it mean to be a good person in this literature? bad? Read aloud several McGuffey's stories with heavy-handed moral lessons (easy to find them!), and invite students to discuss the differences and similarities. Evaluate their present basal reader and the McGuffey's reader of corresponding difficulty, using enjoyability as a criterion. Discuss their reasons for their evaluation.

4. Interesting comparisons can be made between present-day readers and McGuffey's on the basis of textual analysis. Explain to students how to count word length and/or sentence length. Assign a pair of readers, present and McGuffey's at the same level, to each small group. Allow them to plan a way of comparing the two for word length and sentence length. (This will involve decisions about sampling, meaning of word and sentence, accuracy, and averaging.)

5. A comparison can be made between a run of present-day readers (Primer-6) and the McGuffey's Primer to Level 6. Students can analyze for word and sentence length at each level, and present their findings graphically. To what might the differences be attributed?

6. A further exercise in this vein might be to examine a present-day basal reader at a given level and compare it with some trade books at the same approximate level, looking at vocabulary, word length, and sentence length. Do they find differences between readers and trade books? What are their conclusions about their findings? An inquiry from the class to the basal reader publisher might result in some information about the "readability formula" used in preparation of the basals.

Grade 6 - Social Studies

Material: Earthshapes Posters (Creative Publications)
Topic: Map projections and the meaning of map and geography terms

The lessons suggested use the material as an essential focal point.

1. Examine the different configurations of possible "earths" (cone, cylinder, flat, toroidal, cubical, etc.) and discuss the resulting location of poles and equator for each. Define and redefine the meaning of each term.

2. Consider the changed configurations of night and day on the alternate earthshapes. What kinds of far-reaching consequences might result from a different night/day arrangement? Begin by listing the effects of our regular 24-hour cycle on us and our affairs, and on the rest of the living world.

3. Demonstrate and/or draw the relationship of each shape to the sun, and the implications for seasonality. Here's a good chance to be sure students really understand what happens in the solar system to give us our four seasons--or lack of four seasons at the equator.

4. Using a cut-apart three dimensional paper or plastic model of our earth (a cheap plastic beach ball with rough outlines of continents indicated in marker works well), discover the reason for the distortion by some projections of features north and south of the equator. Construct models of some of the earthshapes and plan how to project them with a minimum of distortion (a quite complex problem to wrestle with for some of them).

5. What are the gravitational effects of living on a (more or less) round earth? (The effects of gravity are virtually the same for all places on the earth.) What differences might there be on the different earthshapes? What might be possible effects upon body shapes, or, why is the earth round?

6. This is a tough one. Draw the various phases of the earthshapes as viewed from the moon. Begin by examining NASA photographs of "earthrise," and discuss the reason for these images. Some of the earthshapes might result in the appearance of two or more "earths" in the sky of the moon!

Grade 5 - Science

Material: How Fast Do Your Oysters Grow? (Carolina Biological)
Topic: Structuring and executing a true investigation in science; to be done by all group members together with the assistance of the teacher.

All lessons draw directly upon material presented in detail in this source.

1. Discuss various types of science investigations which lead to discovery of previously unknown information, as opposed to model-building, demonstrations, "reports," etc. Decide on some areas of science which could be investigated, and brainstorm questions which could be asked about these areas. Establish criteria for evaluating practicality and interest of investigating for answers, rank questions in order of practicality plus interest, and decide on investigation to be done.

2. Discuss a statement of purpose of the investigation. Plan a list of all equipment which will be needed. Plan and describe all steps of the experimental procedure including how data will be recorded and analyzed. Plan a timetable for all steps. Begin experimentation and continue through unit until completed.

3. Examine various forms of graphic presentation of data, using examples from newspapers, magazines, and books. Experiment with using the different forms for displaying data; the almanac is a convenient source of statistics with which to practice.

4. Discuss meaning and significance--or lack thereof--of experimental results, and draw conclusions. Refer to questions originally asked and decide what answers have been found, and what have not. This is a most important step which is often left out!

5. Examine form of scientific data reporting using articles in scientific journals (Science, New England Journal of Medicine, etc., as opposed to "pop science" magazines) as examples. Prepare, as a group, your final report, include summary or abstract, introduction, description of methods and equipment used, results, discussion or interpretation of results, conclusions, and ideas for further research.

(By following these steps in one group science investigation, rather than trying to carry out a number of individual investigations, students will be better prepared to carry out independent work at a later time.)

Grade 5 - Social Studies

Material: Superthink (Dandy Lion)
Topic: Questions about U. S. history and geography

1. What are all the reasons explorers explore? How were explorers like astronauts? How were they different? How are the students like Columbus? Why is Columbus credited with discovering America?

2. What is the nature of the similarities between life for Colonial students, and life for present-day students? What is the nature of the differences? That is, what classes of things are the same, and what different? What might be the explanation for these findings? In what ways can you prove that people who lived in the Colonial period were very much like us? If suddenly arriving in your town, what might a Colonial child find the most frightening? the most familiar? the most baffling?

3. What might have been the effects of television during the Revolutionary War period? What is a revolution, anyway? (A rapid or sudden change.) How many kinds of revolution can students think of? What is the difference between a revolution and a cycle? Draw, in a non-representational way, a revolution.

4. Why do states, cities, and countries have boundaries? If you were going to make a new state, where would it be, and why? Suppose the Mississippi River ran from east to west instead of north to south, what differences might this have made in American history? Suppose the Rocky Mountains ran from east to west instead of north to south, what differences might this have made in American history? Which do you think is more important, the Mississippi River or the Rocky Mountains, as a force in American history?

5. In what ways are the forest regions of the U. S. like those of the Amazon rain forest; in what ways do they differ? Suppose the U. S. had as much forest region as South America, what might be the effects? This would displace other regions; which displaced region could be spared with the fewest problems? How might our life be different if there were no grasslands in the U. S.? Make a web showing all the effects.

Grade 4 - Science

Material: Solar Power Winners (Creative Publications)
Topic: Absorption, retention and reflection of solar power.

All experiments are fully described in the material, as well as many others. Each experiment is extremely simple, and is presented very simply.

1. Is bigger better in collecting solar energy? Use different sizes of disposable pie plates painted black, covered with plastic wrap and mounted on newspaper stacks, and a thermometer, to find out. What happens if you skip the black or the plastic, or use different heights of paper stacks? What color absorbs the sun's heat best? Use different colors of construction paper, ice cubes of uniform size laid on top the papers, and a timer to find out. Would you get the same results by putting the papers on top the cubes?

2. Which soaks up more solar energy, gas, liquid, or solid? Use three thermometers, three plastic cups, dirt or sand, and water to find out. After bringing all three materials to the same

temperature, set in the sun and check the temperature every 10 minutes for an hour. Graph your results. Try different liquids, maybe using food coloring in some. Try different solids, perhaps shredded newspaper, sawdust, and sand. Design an experiment to see which form of matter retains energy the longest.

3. What kind of container keeps something cold the longest? Use a soda can and styrofoam, plastic, and paper cups, plus ice cubes, to find out. With an ice cube in each, put the containers in the same sunny place, and chart how long it takes each to melt. How about keeping something hot? Use four juice cans painted white, black, green, and red, hot water, and a thermometer for each. Take a temperature reading every 3 minutes for 18 minutes, and chart the results. Which color absorbs more heat? Which reflects more heat?

4. Does a house stay cooler if no light or air gets in? You need four cardboard boxes all of the same shape and size. Make one cardboard box "house" with one "window" cut open (with a flap) on the "second floor" and one on the "first floor" (also with a flap). Make a second "house" with a "window" just on the "second floor" (with a flap); and a third one with a "window" and flap just on the "first floor." Finally, make a fourth "house" with no windows. Make a small hole in the top of each box and stick a thermometer into each "house" through it. Put the boxes in direct sun. Check the temperature after 15 minutes, and then take readings every five minutes. Chart the results. What are your conclusions about cooling your own home? Your classroom? What variations can you make on this experiment?

5. How hot can you get the temperature of water using only concentration and reflection of sunlight? Use a clear container holding 25 ml of water, and support your container off the ground in some way. Record the water temperature. Take the container outdoors and rig up a way to reflect the sun's rays into the container using a small pocket mirror. Measure the temperature every 5 minutes. Draw a diagram of your experiment. (Which team can get its water the hottest?) Would more mirrors work better? Suppose it were a different time of day?

Grade 4 - Mathematics

Material: The I Hate Mathematics Book (Creative Publications)
Topic: A variety of activities in mathematics other than arithmetic.

1. Invite students to discover how many different combinations of three different ice cream flavors there might be in a two scoop cone. "Combinations" mean that it doesn't matter which flavor is on top and which on the bottom. Now suggest that it does matter which flavor is where, that is, that vanilla on the top and coffee on the bottom is a different cone from one with coffee on top and vanilla on the bottom. These are "permutations." Invite students to find out how many permutations of two scoops would be possible with three flavors. Show how to use a table to find out the pattern for combinations and permutations. Then invite students to make up their own real-world combination and permutation problems.

2. (Good for use in a city school, or another school around which there are lots of birds: pigeons, crows, starlings, robins, herring gulls, etc.) See how close you can get to a particular species of bird without making it take flight. Pick a bird, walk slowly and quietly toward it, and drop a heavy marker at your feet when it moves or flies away. Now measure the distance from your marker to the spot at which the bird took off. Try this ten times for the same species of bird. Is there a pattern? Are different kinds of birds different? Might using bird seed or bread crumbs make a difference? How about trying this with people? Are there differences in age or sex?

3. Encourage students to find different types of symmetry: mirror (like butterflies or the letter H) and rotational (like flowers), or both (like snowflakes). Invite them to classify the various objects in which they discover symmetry, in order to find these different types. Send them on a treasure hunt looking for symmetrical objects.

4. Using a banana in the skin, how many different shapes of slices can be made through it? That is, what shape is seen when the cut section is examined? How might these shapes be arranged in some kind of order? Now try this experiment with a cone shaped object (perhaps made of plasticine or playdough.) Try arranging the resulting series of shapes in some kind of order. How about a sphere? A cube? What discoveries are made in these investigations? What other shapes can students section in various ways?

5. In how many different configurations can students arrange a set of five squares, in such a way that edges are touching and corners are lined up (rather than off center to each other)? The rule is that if an arrangement could be cut out and fit exactly over another arrangement, it doesn't count. (There are 12 different arrangements.) Now see how many of them, if cut out, could be folded into boxes. Next try this activity with 6 squares, then 4 squares, and 3. Can students find a pattern that will help them predict how many different arrangements could be made with 7 squares?

Grade 3 - Language Arts

Material: Strange And Familiar (Creative Learning Systems) and Hippogriff Feathers (Good Apple)
Topic: Writing ideas using creative thinking and synectics techniques

1. Invite children to think of new uses for a kitchen table. List them on the board in a brainstorming session. Suggest that they can turn it upside down, or take it apart, or add or take away some part. Now ask them to work with a partner to write a brief story about a kitchen table and how it got used for something strange besides a table. See if the partners can think of a use that they think no one else will think of. Make this a short writing time. Share stories. Make a list of the ways in which the tables were used. Can students classify the different kinds of uses?

2. See how many things the group can list which are red and can be eaten. Work for a long list. Now assign one of the red edible things to each pair of students. Together the students must design and describe a way of feeding their red edible thing to a monster, without getting too close. Ask students first to write about their plan, then they may have paper to illustrate how it will work.

3. Tell students you are going to ask them some strange questions, just for playing. Begin by asking which they think needs more protection, a turtle or a rock. Discuss responses and their reasons for them. If no student chooses the rock, ask them in what ways a rock might need protection, and can they think of any reasons why a rock might need more protection. Give ample time for this discussion. Now invite students to respond in writing to these questions. Give them time to explain the choice they make, in writing. Share and discuss responses. "Which is more powerful, a weed or a stone wall?" "Which weighs more, a big rock or sadness?" "Which is noisier, a worm digging or a plant growing?" "Which is more like a frog, an owl or a rat?"

4. In this exercise, students are asked to <u>become</u> something else, not to pretend they are something else, but to <u>be</u> the other thing. Begin by inviting students to <u>be</u> a roll of masking tape which you hold before them in silence. Turn it in several directions; pull off a bit of tape. Now invite them to become the animal which you will suggest. Give them some time to respond in writing to the following: "You are an alligator. You live in muddy, tropical waters. A hunter is trying to catch you so that he can use your skin for wallets and shoes. You are in the middle of a great swamp. The hunter is very close to you. What are your feelings about always being hunted? What to you do to hide yourself?" Suggest that students begin their writing with the word, "I."

5. With the students' help, make a list of things which were true about the world at the time of the dinosaurs--how the land looked, what sounds and sights could be heard, etc., etc., and what things are true in our time. Some things will be the same then as now. Now ask students to close their eyes. Lead them through a guided visualization about the time of the dinosaurs, drawing upon the things which they have listed as having been present then, as well as those things which would not have been present ("You do not see any cars, houses, or humans," and so forth.) Now ask students to become a very small mammal living at the time of the dinosaurs, a small possum for instance. Ask them to write about what they see, hear, feel. Begin the writing with the word, "I."

Grade 3 - Mathematics

<u>Material</u>: <u>A. C. T. 1</u> (Penns Valley Publishers)
<u>Topic</u>: Investigations in math topics other than arithmetic

1. Discuss these questions with students: Pretend that for a 24-hour period, all the numbers have disappeared from the earth. How would this affect you? Think about weighing yourself, buying food, using the telephone. How might you do these things in other ways? How

many different ways can you think of? What other consequences can you think of that would result from having no numbers?

2. Go on a treasure hunt in the environment for places in which the triangle appears. See if you can find all sizes of triangles in the environment (as opposed to drawings of triangles). See how big a list of triangle places you can find together. Return to the classroom and see if you can put the different uses into groups that go together; name the groups. Suppose a different shape were used instead of the triangle, a circle (sphere), for example, or a square or rectangle. Would that work as well as a triangle, do students think? Try constructing one of the triangle things using a different shape in place of the triangle. What do you discover?

3. Suppose students suddenly grew to a height of 6 feet during the night. What changes can they think of that would have to happen? List as many as possible. Perhaps pairs of students would like to work together on this list. Who can name the most changes? What are the different classes of changes? Suppose students suddenly shrank to baby size, would the changes be the same kinds, or would some be different? Are there certain things that don't change, regardless of a person's size?

4. As a group, work together to put the following things in order of size: car bicycle newspaper snowplow locomotive iceberg moon elm tree Jupiter dog Pluto submarine table skyscraper fish Discuss the problems you may have had. How can you solve these problems?

5. Give each small group of students a set of U. S. coins (use real ones). Ask them to look closely at the coins and make a list of all the ways in which they are alike. After a while, get a complete listing from all groups. Now invite each small group to design a new U. S. coin. It must share all the likenesses which U. S. coins already share, but it must have enough changes so that it is a new coin. Groups should draw complete pictures of both sides of their new coins. Can some foreign coinage be obtained? Does it seem to have things in common with the U. S. coins?

Grade 2 - Mathematics

Material: Attribute Blocks, Games, And Problems (Creative Publications)
Topic: Exploring with attribute blocks

All activities described here are to be used with a set of attribute blocks. Many more activities are described in the games and problems material. These activities may be done by one, two, or a small group of students. They are drawn from task cards and are given as instructions to the student(s).

1. Without being able to see what you are doing, take one block from the box, describe it, and take a guess as to what other blocks might

be in the box. Take out one at a time and keep making guesses. When you have taken out 12 blocks, see if you can describe what, and how many, blocks are left inside. Now check yourself. Next, take a while to build things with all the blocks. Can you make some constructions you think are "usual"? How about some "unusual" ones? What are the differences?

2. Do this activity with someone else. Choose a shape, and gather together all the blocks with this same shape. Build something with them or arrange them in some orderly way. Ask the other person to add or take away something from the group when you are not looking. Can you see what was changed? Try this a few times, and then try it with all the blocks of a certain color. Now arrange all the blocks into two groups, big ones and small ones. Are there differences in size among the large blocks, and among the small blocks? How can you find this out? What do "small" and "large" mean, anyway?

3. Size, color, and shape are the differing attributes of the blocks. Gather together groups of each different shape. Square, triangle, diamond, and circle are different values of the attribute shape. Make a chart showing the different values of each attribute. Now, make a group (a subset) of blocks which have the same color and the same shape. How many blocks in that subset? How many subsets can you make? How are the blocks within a subset different from each other? Name all your subsets (for instance, the subset of yellow diamonds). Next, try making subsets of blocks that have the same color and the same size. Ask yourself the same questions. Are there other combinations of two attributes you can make subsets of?

4. Choose a value, and make a subset containing all the blocks of this value; do the same for another value. Now, from these two subsets, pick all the blocks that have both the values you chose. How many blocks in the first subset? the second? the one with both values? Can you make a subset with a different number of blocks by choosing other values?

5. Make a subset of all the blocks that are either yellow or diamond. How many blocks? Now try either large or red; number of blocks? Can you tell without actually using the blocks how many of them would be in a subset made of blocks which are either triangles or green; either small or blue? Now put into the box all the blocks that are either red or circle (put the rest aside). Take out of the box all the ones that are not circles; in what way are these blocks alike? Put them back and try the same thing for all the blocks that are not red; in what way are they alike? Suppose the box had all the blocks that are either yellow or square. What can you say about the blocks that are not square? not yellow?

6. Try this guessing game: take all the yellow and all the green circles and diamonds and arrange them in some kind of orderly way. One piece is not yellow, not a diamond, and not small. Which one is it? Another is not large, is a circle, and is not yellow. Which is it? Try playing this kind of game with another person. What other guessing games can you make up with the blocks? Can you play some games using the colored loops?

Grade 2 - Social Studies

Material: Design-A-Project (Dandy Lion)
Topic: Exploring the neighborhood through unusual projects

It is strongly suggested that teachers participate in these activities about their neighborhood, and share their findings with children.

1. Invite children to describe the best things in their neighborhood. Explore reasons why the things are good. Send them on a "Treasure Hunt for the Best Thing About My Neighborhood." Parents can be involved in a walk around the neighborhood looking for the child's favorite place, person, or thing to do or look at. When a "best thing" has been decided upon, each child may plan and design an award to be given to their best thing, along with a written description of why the thing is being given the award. A picture of the best thing may be drawn as a part of the description. Make a display of the awards for Best Thing About My Neighborhood.

2. How can neighborhoods be different from each other? What things do neighborhoods all have in common? What things can you compare and contrast in a neighborhood? Following a discussion of these questions, assign children to choose one kind of thing in their neighborhood (houses, trees, stores, gardens, pets, sidewalks, families, or whatever they like) and make a list of how any two of the things are alike, and how they are different. This activity may be preceded by taking a look at pairs of pictures of neighborhood features and finding similarities and differences.

3. As a group, brainstorm a list of interesting questions which we could ask about our neighborhoods. Decide on the ten best questions which children feel could really be answered. Now assign the ten questions to students as they explore their own neighborhoods. Students who live close to each other can work as teams. Share answers to each question. What similarities and differences are found among the answers to each question?

4. What needs improving in your neighborhood? Invent a machine which will make this improvement, or some other kind of solution to the problem. Make a big drawing of your machine or solution, and describe how it will work. Invite neighboring students to work together on this project. Finally, plan an advertisement for television for your new, improved neighborhood, and act it out.

5. Although students are young, they probably have noticed and remember changes that have occurred in their neighborhoods. Demonstrate the use of the time line for classroom life since the beginning of the school year, and then invite students to make a time line for neighborhood events that they remember since they have lived in their neighborhood. Again, students who live in the same neighborhood may wish to work together; pooled memories help.

6. Challenge students to make up some fantastical "What If...?" questions about their neighborhood (What if we had a lake where the grocery store is now? What if a dinosaur appeared in my front yard

overnight? What if all the houses or apartments shrank to dollhouse size every summer, and got big again in the winter?) Students may write stories about what would happen in their neighborhood if..., or they may like to draw a series of illustrations showing the results over a period of time. Another approach is to make a web of effects stemming from the single cause. An alternative to having each student try this exercise is to choose one "What If...?" question and work on its effects as a whole class, making a giant cause and effect web display.

Grade 1 - Language Arts

Material: What If The Wolf Were An Octopus? (Trillium)
Topic: Questions and activities to use with children's literature

1. The Five Chinese Brothers. Did you ever not come when your mother called you? Compare that time with the boy who went with the first brother. How was it like that time? how was it different? Pick out any things in the story that you think really could be true. Make up five more brothers, with five different special abilities. Make up five punishments that wouldn't hurt them. Which brother would you like to be like? How come? Do you think the trial of the first brother was fair? If not, how could it be fair?

2. Stone Soup. Who do you think was smarter in this story, the soldiers or the villagers? Make two groups of the people in the story: those who were generous and those who weren't. Can you think of any people in other stories that you would put into one of your two groups? Make up a recipe for Flower Stew. Suppose you were lost in the woods for a week. Make up some recipes you could cook using only things you might find in the woods. Do you think the villagers really understood what the soldiers taught them?

3. A Birthday For Frances. How do you think Frances felt as Gloria made her birthday wish? Make up a new story telling what would have happened if Frances had eaten all of Gloria's present. What would you bring as a present for an ant's birthday? for a lion? an octopus? What would you like an octopus to bring you for a present? How many ways can you find that Frances was a good sister? How many ways was she not a good sister? What did you think about Frances' parents?

4. The Story Of Ferdinand. How did Ferdinand act like all the other bulls? Can you think of some kinds of things that Ferdinand would like to do that are not told in the story? Make up a pantomime of one of your ideas and see if others can guess what Ferdinand is doing. How could there be a kind of bullfight where no one gets hurt? Make an award for the most understanding character in this story. Why does that character get the award, instead of another character? What are things in this story that could really happen?

5. Frog And Toad Together. How are Frog and Toad the same? How are they different? Do you think they are more alike, or more different from each other? What adventures of Frog and Toad have you had too? Think of some other ways Frog and Toad could have solved their problem about the cookies. Do you think Frog and Toad were brave? What do you think is brave? How many kinds of being brave can you think of? What is a good friend? Do you think Frog and Toad were good friends to each other?

Grade 1 - Science

Material: Guppies, Bubbles, And Vibrating Objects. (Creative Learning Press)
Topic: Exploring the world with a magnifying glass

1. Provide lots of magnifying glasses for these activities, one for each student. Have available a large collection of things to look at: leaves, coins, newspaper, salt, sugar, nutmeg, wood, hair, fur, water, bubble-blowing liquid, some insects, meat, pond water, different kinds of cloth, or whatever is around. Begin by allowing children to look at whatever they wish, and to share their observations with each other.

2. Invite children to choose one or two objects they find especially interesting to look at under the magnifiers. Encourage them to use markers or colored pencils to draw and label pictures of what they see. Post pictures of the same objects side by side. Compare the drawings. How are they alike? How are they different?

3. Give students the chance to look at salt, sugar, sand, and flour under the magnifiers. Invite them to draw pictures of each, and put the name of the substance on the back of each picture. Then see if the whole class can pick which pictures show which substance. What words can be used to describe the differences between the substances? What words can be used to say how they are alike?

4. Look at a newspaper picture under the magnifier. Ask children to draw what they see. Suggest that they look at a dark spot in the picture, and a light spot, and draw what they see. What are the differences in the two places? Put a ruler on the picture and use the magnifier to count the number of dots in half an inch. How many dots in an inch? Can they figure out a way to use the dots in a picture to measure distance?

5. Supply a collection of different kinds of leaves, including some dead ones, to look at under the magnifiers. What surprising things do students notice? What might the little holes in the leaves be for? Invite students to examine their own skin and see what they find. What similarities and differences between the leaves and skin do they find? Give them a chance to examine the freshly cut ends of stems. Conduct an experiment now in which a white flower, or some celery with leaves, is placed in water colored with red food coloring. Allow students to predict what they think will happen. If students feel the leaves or stems might turn red, give them a chance to predict how long this might take. Can they think of any ways to

make it happen faster? more slowly? is there a difference if the plant is in the sun or not? Can they think of other experiments to try in this vein? What does this have to do with what they observed in the stems under the magnifiers?

AFTERWORD

Of course, it is the quality of the teaching, your teaching, that determines what actually happens for students in your classroom! Materials are only as good as the teacher who draws upon and transforms them. In the end, the art of teaching must depend upon the gifts of the individual teacher, upon passion, intelligence, and love of learning. No curriculum material can ever substitute for that.

Reader Response Questionnaire

The Office for Gifted and Talented has a major commitment to developing publications that serve as resource guides for administrators, teachers, and parents of gifted and talented students. This Reader Response Questionnaire will help the Office to determine the usefulness of past publications, identify topics for future publications, and improve their usefulness and quality. Please answer as many questions as possible. This questionnaire should take only a few minutes of your time. Thank you for your support of this effort to better meet your needs.

Please indicate how useful the following publications may have been to you:
0=Did Not Receive 1=Not Useful 2=Somewhat Useful 3=Useful 4=Very Useful

__CHALLENGING & ENRICHING EXTRACURRICULAR ACTIVITES
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Please comment on this publication's completeness, accuracy, organization, usability, and readability._____

Did you find errors in this publication? If so, specify by page._____

How can this publication be improved to better serve your needs?_____

What topics on gifted and talented education would you be interested in?_____

Other comments? *Feel free to continue on the back.*_____

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